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Latin America Training and Development Center

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Self-Instruction Series



Basic Treasury

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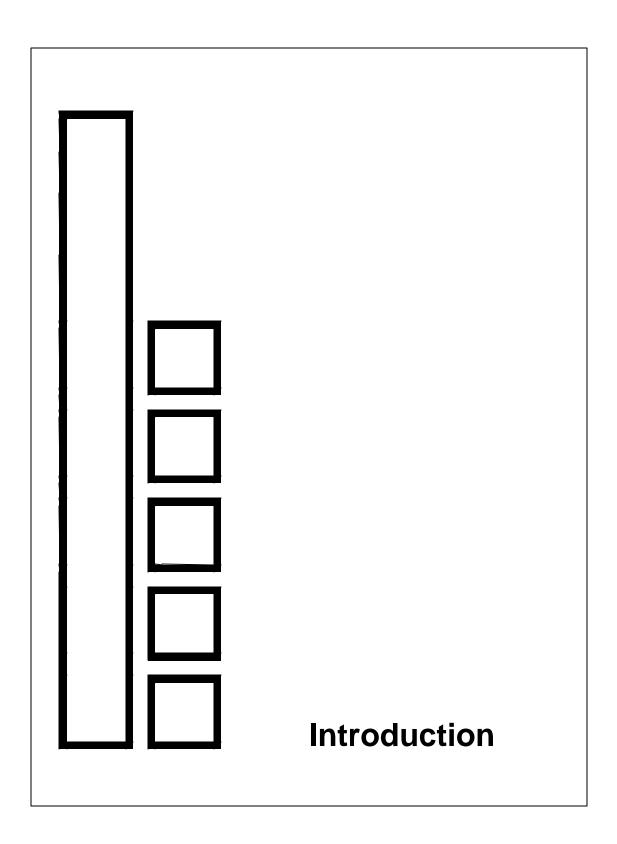
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INTRODUCTION: BASIC TREASURY

OVERVIEW

Day-to-day, commercial banks are the most active participants in the domestic money market, foreign money market, and foreign exchange market. Their importance is measured by the volume of transactions they execute in these markets and how many prices they provide.

In this BASIC TREASURY course, we introduce many issues relevant to the Treasury Department and exposure management. This course is designed to give you an overall picture of a bank's relationship to the markets and, more specifically, the Treasury Department's role in these operations. Whether or not you intend to become a trader, it is important to understand the Treasury's function and impact on other bank operations. Other workbooks in the Exposure Management series provide more detail about the financial products marketed by the Treasury to the bank's customers and used by the Treasury to manage the bank's exposures.

The unique format of this course offers you an overview of bank and Treasury functions in this workbook, while details about money market and foreign exchange transactions are presented on computer diskettes.

TOPICS

This Basic Treasury course is divided into four units:

■ Unit 1 – Treasury Overview

■ Unit 2 – Introduction to the Markets

■ Unit 3 – Basic Concepts — Money Market

■ Unit 4 – Basic Concepts — Foreign Exchange



Unit 1 is *presented in this workbook*. Units 2, 3, and 4 are *presented on diskettes* (see Appendix A).

Unit 1 consists of nine lessons. In these lessons, you will explore the function of a bank and the role of the Treasury within that context. You will see that the Treasury is responsible for managing the bank's liquidity and how the Treasury has developed into a profit center for the bank.

In **Unit 2** you are introduced to the domestic and foreign money markets and the foreign exchange markets. You will see how and why the bank interacts on a domestic and international level.

Details about money markets are presented in **Unit 3**. We discuss how cash flows are affected by money market transactions, how market rates are expressed and quoted, and the factors that cause rates to change.

Foreign exchange is the focus of **Unit 4**. The topics include the impact of foreign exchange transactions on cash flows and net exchange positions, two-way quotes, cross rates, forward outright transactions, swap transactions, and covered interest arbitrage.

COURSE OBJECTIVES

When you complete this course, you will be able to:

- Define basic concepts associated with Treasury operations
- Recognize how the Treasury functions as a profit center for the bank
- Describe domestic and foreign money markets and foreign exchange markets
- Interpret the expression and quotation of market rates and exchange rates
- Calculate money market and foreign exchange rates



- Relate market conditions to changes in rates
- Describe types of foreign exchange transactions
- Plan cash flow and exchange position strategies

WORKBOOK GUIDE

This workbook is designed to give you complete control over your own learning. The material is divided into workable lessons, each containing everything you need to master the content. You can move through the workbook at your own pace and go back to review ideas that you didn't completely understand the first time. Each lesson contains:



Objectives -

which point out important elements in the lesson that you are expected to learn.



Text –

which is the "heart" of the workbook. Here, the content is explained in detail.

Key Terms -

which are relevant to the topic and important for you to know. They appear in **bold face** the first time they appear in the text and also appear in the Glossary.

Instructional Mapping – terms or phrases in the left margin which highlight significant points in the lesson.



Progress Checks –

which do exactly that — check your progress. Appropriate questions are presented at the end of each lesson, or within the lesson, in some cases. You will not be graded on these by anyone else; they are to help you evaluate your progress. Each set of questions is followed by an Answer Key. If you have an incorrect answer, we encourage you to review the corresponding text and find out why you made an error.

In addition to these lesson elements, the workbook includes:

Appendix A – which contains complete information on

how to proceed with Units 2 through 4 using the diskettes. Once you have started a lesson, just follow the directions on the

screen.

Appendix B – which contains a glossary of definitions of

all key terms used in the workbook as well

as those used in Units 2 through 4.

Appendix C – which contains a list of ISO codes.

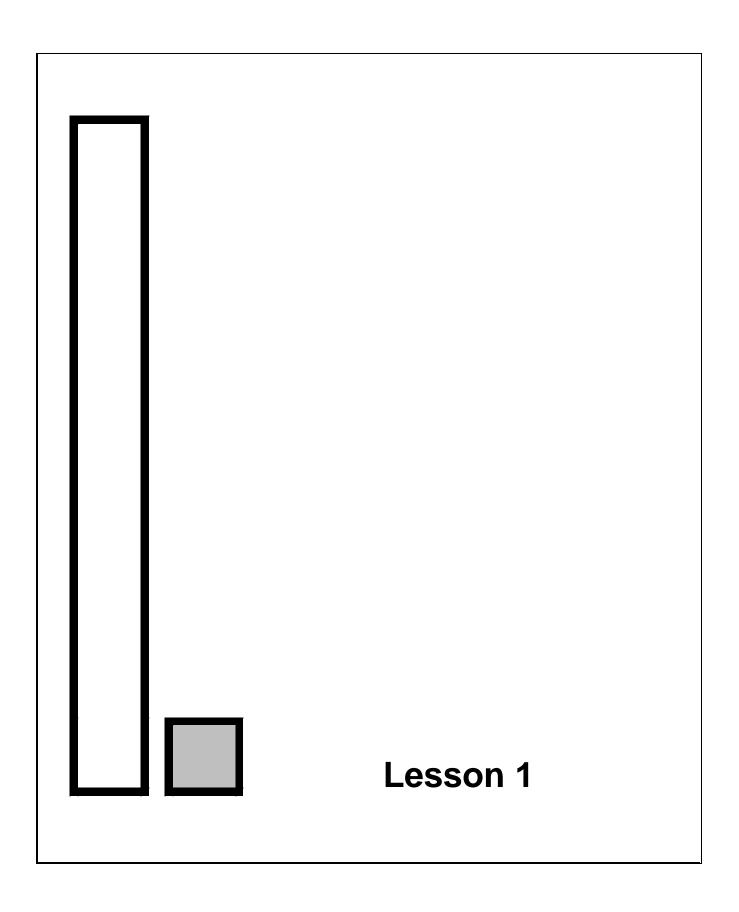
Index – which helps you locate the glossary item in

the workbook.

Since this is a self-instructional course, your progress will not be supervised. We expect you to complete the course to the best of your ability and at your own speed.

Now that you know what to expect, please begin Lesson 1.







LESSON 1: INTRODUCTION TO THE TREASURY

INTRODUCTION

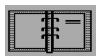
The purpose of this lesson is to identify the role of a bank and the role of the Treasury Department within the bank. Whatever your role in a bank, it is important for you to understand the role of the Treasury and its impact on the bank as a whole.



OBJECTIVES

When you complete this lesson, you will be able to:

- Recognize the role of the Treasury within the bank
- Identify key factors in funds management
- Define liquidity and its importance to the bank
- Recognize the role of the Central Bank in controlling the money supply



WHAT IS THE BANK'S FUNCTION?

We all know that the function of a bank is to act as a financial intermediary between **investors** or depositors — people with a temporary surplus of funds — and **issuers** or borrowers — people with a temporary need of funds. (See Figure 1-1.)



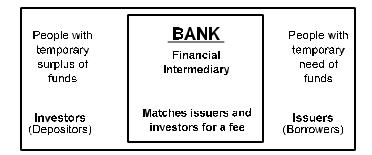


Figure 1-1: Bank is an intermediary

To accomplish this function, banks organize around deal flows:

- 1) The deal can originate from the investor or depositor.
- 2) The deal can originate from the issuer or borrower.

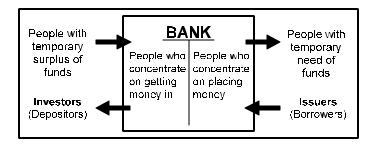


Figure 1-2: Two groups within the bank

WHAT DOES THE TREASURY DO?

Maintains liquidity and maximizes profits

Money does not flow directly from those who take funds in from depositors to those who hand them out to borrowers; the use of money must be coordinated to maintain liquidity and maximize the bank's profits. It is the coordination, or management, of these funds that is the role of the **Treasury Department**.



Objectives

The Treasury manages clients, markets, and products in order to:

- Provide funds to meet the bank's obligations to depositors
- Help borrowers and issuers raise funds
- Reduce assets on the bank's balance sheet and supply investors with investment alternatives
- Maximize the bank's profits through trading and sales
- Increase fee income through deal structuring

The Markets

The Treasury pursues some of its objectives through transactions in the domestic money market, the foreign money market, and the foreign exchange market.

Domestic money market

The domestic money market is a market in which money is borrowed and lent in exchange for negotiable financial paper that represents a sum one person or institution owes another. Domestic money markets trade in local currencies and are subject to regulations governing those domestic markets.



Money market instruments are easy to understand because they are similar to a personal check. Your check is a piece of paper that represents a sum of money that you owe to another party as of a specific date. When that person takes the check to the bank on or after that date, the bank exchanges the check for cash.

You may receive a check that is good on a future date, but you may need the cash immediately. Like other money market instruments, the check is negotiable. If you have a friend that is willing to give you money in return for the check, you can endorse the check over to your friend. You then have cash and your friend owns the instrument to trade at the bank for cash on a future date.

Foreign money market

If a currency is borrowed or loaned outside the country of that currency, it is traded in the foreign money market. Foreign money markets allow funds in any currency to be traded outside the regulations governing domestic markets of that currency.

For example, if a British bank with a checking account denominated in bolivars takes in a bolivar deposit, the bank typically does not pay a reserve requirement (see page 9) for those funds to the Venezuelan Central Bank or the Venezuelan bank with which they have an account. This allows the British bank to pay the depositor a higher rate of return.

Foreign exchange market The **foreign exchange market** is the market in which contracts are made to exchange one currency for another on either a spot (immediate) or forward (at a specific future date) basis.



Key Variables in Funds Management

To manage the bank's funds, the Treasury must control some key financial variables.

- Amount
- Tenor
- Currency
- Risk

Amount

Balance of assets and liabilities

The amount of **assets** (anything that is owned, such as loans, securities, real estate, etc.) is coordinated with the amount of **liabilities** (anything that is owed, such as demand and time deposits, bank placements received, and net worth) to provide sufficient cash to ensure the bank's **liquidity**. This allows the bank to perform one of its most important functions: to meet its obligations without delay. We look at managing and maintaining the bank's liquidity in greater detail in Lesson 3.

Tenor

Timing of cash flows

Cash is available when needed if the **tenors** (the periods between the date obligations are assumed and the date they become due) for assets and liabilities are coordinated. This timing of cash flows determines the gaps or **gapping position** of the bank.



A gap in money market transactions is the period between the maturities of placements (loans) and the maturities of borrowings (deposits) of each currency. In the foreign exchange market, a gap is the period between the maturities of purchases and the maturities of sales for each foreign currency. In Lesson 4, you will learn about gapping strategies.

Currency

Net exposure in each currency

The value of each currency (dollars, yen, euros*, etc.) on the asset side and the value of each currency on the liability side is used to determine the **net exchange positions** of the bank. A net exchange position equals the present value of all the assets and spot and forward purchases of a currency minus the present value of all the liabilities and spot and forward sales of that currency. You will learn more about net exchange position and what it means to take a "position" in a currency in Lesson 5. *In January of 1999, the Euro (EUR, International Standards Organization code) became operational on an electronic basis for institutional financial transactions, allowing real time electronic funds transfer between sovereign member states. The currencies of Austria, Belgium, France, Finland, Germany, Holland, Ireland, Italy, Luxembourg, Spain and Portugal were fixed to the Euro at irrevocable rates. (See Foreign Exchange Workbook for more detail).

Risk

There is always an exposure to risk that results from acquiring an asset or incurring a liability.

Liquidity risk

Liquidity risk is the chance that the bank will be unable to liquidate enough assets to meet financial obligations on time. Exposure to liquidity risk occurs whenever the maturities of assets are longer than the maturities of liabilities or when you sell more currency than the market will allow you to buy back.

Counterparty risk

Counterparty risk is the chance that a borrower will be unable to repay the **principal** and/or pay the **interest**. In foreign exchange it is the possibility that one party will be unable to fulfill the contract to exchange currencies either before or on the maturity date.



Price risk

Price risk is the chance that interest rate or **exchange rate** movements will adversely affect the value of assets and liabilities. In *Lesson 6: Capital Hedge*, we learn about a method for reducing risk.

In Figure 1-3, you can see how the Treasury manages the bank's liquidity, gapping position, net exchange position, and exposure to risk by coordinating each of the variables: amount, tenor, curency, and risk.

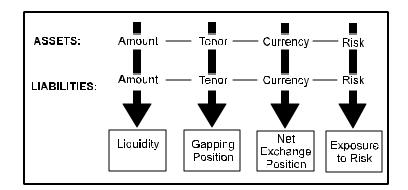


Figure 1-3: Treasury coordinates financial variables

WHAT IS LIQUIDITY?

Liquidity is the ability to meet all financial obligations of the bank without delay. It is also a measure of the bank's ability to fund any asset it wants to acquire.

Micro-economic importance of liquidity

In terms of **microeconomics**, or internal economic importance, a bank cannot survive without liquidity. The bank needs money to cover all obligations on time.

Suppose that a depositor comes to our bank to withdraw a time deposit and the bank doesn't have the money to pay. Obviously, all the other depositors will lose confidence in our bank and come to ask for their deposits back.

Our depositors bring us money because they believe in our ability to repay. The bank sells credibility; without it we are out of business.



Maintaining liquidity on a permanent basis is a question of survival for the bank. If a bank (or any other business) is not profitable over the long term, it will end up having liquidity problems which will ultimately drive it out of business. Although the bank can afford to make a bad deal once in a while, it can never afford to be illiquid!

Macroeconomic importance of liquidity In terms of macroeconomics, liquidity is crucial for society as a whole. As we said before, if our bank becomes illiquid, it means that we are unable to fund borrowers and repay our depositors. Consequently, they will not be able to pay obligations they may have to other creditors.

We can see how a liquidity problem in one bank may eventually affect the liquidity of other banks. In the worst possible scenario, it may eventually collapse the financial system of the whole country.

Liquidity, therefore, is critical from the point of view of bank administrators, shareholders, etc., and also from the point of view of the society as a whole. For this reason, one of the functions of a country's Central Bank is to see that banks remain liquid.



WHAT IS THE ROLE OF THE CENTRAL BANK?

Controls the money supply

Central Bank's role is not limited to liquidity problems. Central Bank authorities play a major role in controlling the money supply. An increase or decrease in the amount of money that circulates in the economy has a direct impact on:

- Inflation
- Economic growth
- Balance of payments
- Exchange and interest rates

To control the money supply, Central Bank authorities regulate the quantity of currency (coins and bills) in circulation. The main instruments of control are:

- Legal reserve requirements
- Discount rate
- Open market operations

Legal reserve requirement

The **legal reserve requirement** is the amount of cash or other liquid assets — normally expressed as a percentage of demand and time deposits — that commercial banks must maintain in their yaults or with the Central Bank.

Central Banks increase and decrease legal reserve requirements on commercial banks to influence the country's available credit and disposable income, but the process also affects banking liquidity. For example, lower legal reserve requirements permit banks to make more loans and to hold a larger volume of deposits with the same quantity of reserves.



Discount rate

In their role as "lenders of last resort," Central Banks can solve the liquidity problems of commercial banks. These banks may borrow funds from the Central Bank at a cost determined by the **discount rate**.

When the Central Bank raises the discount rate, commercial banks are less inclined to borrow from the Central Bank, causing a decline in the amount of currency in circulation. On the other hand, when the discount rate is lowered, commercial banks take more loans from the Central Bank and more money circulates in the economy.

Open market operations

The Central Bank also engages in open market operations to regulate the quantity of money in circulation and the liquidity of the economy.

To relieve the inflationary pressures of a too-liquid economy, the Central Bank sells bills with varying maturities to the banking system in exchange for currency. The interest rate on these bills is usually higher than the prevailing market rate at the time of the transaction. The money supply decreases until the bills mature and the banks receive the currency back plus the interest earned.

SUMMARY

A bank has two types of customers: borrowers (issuers) and depositors (investors). Depositors have a *temporary surplus* of funds and borrowers have a *temporary need* of funds.



Banks serve their customers by meeting issuer and investor needs. In order to do that successfully, the Treasury Department of the bank must coordinate the financial variables associated with assets and liabilities. The financial variables that must be coordinated are:

- Amount (of assets)
- Tenor
- Currency
- Risk

Coordination of the cash position is necessary to ensure the bank's liquidity. Liquidity is the ability to convert assets into cash or the equivalent, without significant loss, to meet the financial obligations of the bank.

The microeconomic importance of liquidity is that it determines a bank's ability to stay in business. Commercial banks hold operational reserves to prevent liquidity problems.

From the macroeconomic perspective, liquidity has implications for a country's economic health. A Central Bank contributes to a country's economic stability by:

- Increasing or decreasing legal reserve requirements
- Raising or lowering the discount rate charged to commercial banks
- Engaging in open market operations



You have just completed *Lesson 1: Introduction to the Treasury*. Please complete the following Progress Check before continuing to the next lesson, *Reserves*. If you answer any of the questions incorrectly, you should return to the text and read the corresponding section again.



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PROGRESS CHECK 1

Directions: Select the **best** answer(s) for each question below. Compare your answers with the Answer Key on the following page.

Ougstion 1.	The healt concentrates on two major energions which exects a
Question 1:	The bank concentrates on two major operations which create a natural organizational structure. What are they?
	a) Taking money in
	b) Coordinating currencies
	c) Loaning money out
	d) Accumulating assets
Question 2:	Liquidity vs. illiquidity depends on whether you have mismatched
	a) amounts of each currency.
	b) interest rates.
	c) assets and liabilities.
	d) net exchange positions.
Question 3:	The present value of each currency on the <i>asset</i> side minus the present value of each currency on the <i>liability</i> side is calculated to derive the bank's:
	a) liquidity position.
	b) net asset position.
	c) foreign money market position.
	_d) net exchange position.



ANSWER KEY

- **Question 1:** The bank concentrates on **two** major operations which create a natural organizational structure. What are they?
 - a) Taking money in
 - c) Loaning money out
- **Question 2:** Liquidity vs. illiquidity depends on whether you have mismatched:
 - c) assets and liabilities.
- **Question 3:** The present value of each currency on the *asset* side minus the present value of each currency on the *liability* side is calculated to derive the bank's:
 - d) net exchange position.



PROGRESS CHECK 1

(Continued)

Question 4:	The period between the maturity date on funds that have been borrowed and the maturity date on funds that have been placed is called a(n):
	_ a) interim.
	_b) gap.
	_c) wait.
	_d) interval.
Question 5:	The microeconomic significance of liquidity management is the:
	_a) bank's ability to meet its obligations on time.
	_b) loan department's ability to make loans.
	_c) stability of the country's banking system.
	_d) stability of world economy.
Question 6:	The macroeconomic significance of liquidity management is the:
	_a) loan department's ability to make loans.
	_b) stability of world economy.
	_c) bank's ability to meet its obligations.
	_ d) stability of the country's banking system.



ANSWER KEY

- **Question 4:** The period between the maturity date on funds that have been borrowed and the maturity date on funds that have been placed is called a(n):
 - b) gap.
- **Question 5:** The microeconomic significance of liquidity management is the:
 - a) bank's ability to meet its obligations on time.
- **Question 6:** The macroeconomic significance of liquidity management is the:
 - d) stability of the country's banking system.



PROGRESS CHECK 1

(Continued)

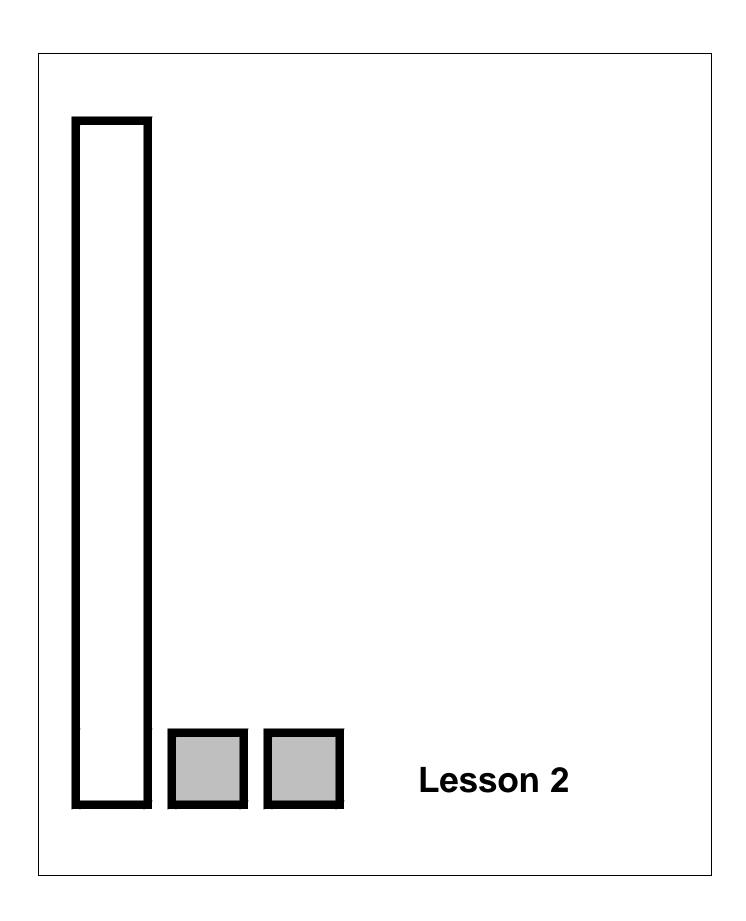
Question 7:	The Central Bank of each country usually mandates that a certain percentage of each bank's commercial deposits be retained as liquid assets. These funds are called:
	a) discounts.
	b) legal reserve requirements.
	c) time deposits.
	d) demand accounts.
Question 8:	The instrument used to control borrowing by commercial banks from the Central Bank is:
	a) liquidity management.
	b) the reserve requirement.
	c) the discount rate.
	d) gapping.



ANSWER KEY

- **Question 7:** The Central Bank of each country usually mandates that a certain percentage of each bank's commercial deposits be retained as liquid assets. These funds are called:
 - b) legal reserve requirements.
- **Question 8:** The instrument used to control borrowing by commercial banks from the Central Bank is:
 - c) the discount rate.





LESSON 2: RESERVES

INTRODUCTION

In Lesson 1, we said that a legal reserve requirement is the amount of money which commercial banks in most countries are required by the Central Bank to keep on deposit. In this lesson, our discussion of reserves distinguishes between two types:

- *Operational reserves* (determined by a bank based on its own needs)
- *Legal reserves* (imposed on the bank by the Central Bank)



OBJECTIVES

When you complete this lesson, you will be able to:

- Recognize the importance of operational reserves in maintaining the organization
- Define legal reserve requirements



OPERATIONAL RESERVES

For possible liquidity needs

An **operational reserve** is cash and other liquid assets kept by the bank to cover possible liquidity needs.

Suppose the Central Bank of a country does not impose legal reserve requirements; that is, a bank is not required by the Central Bank to keep any of its deposits in cash. Does that mean the bank has 100% of the money from deposit customers available for loan customers?



2-2 RESERVES

Liquidity for obligations and expenses

Obviously, a bank requires funds to conduct business — funds for financial payments (such as time deposits that are coming due or demand deposits that are drawn) and funds to cover operational overhead (such as payroll, electricity bill, water bill, etc.). Even if there are no legal reserve requirements from the government, a bank must still keep part of its deposits liquid for financial obligations and operational expenses.

The operational reserve, then, is the reserve that a bank has to keep — not because of an external mandate, but because it is necessary from an operational viewpoint to maintain the organization. The more effective it is, the more the bank can invest or lend, while maintaining lesser reserves.

Level determined by bank

The level of operational reserves is an issue each bank must resolve for itself by taking certain factors into consideration:

- Quality of assets portfolio
- Amount of risk exposure
- Capability of raising new funds
- Concentration of loan and deposit accounts
- Information systems
- Geographical diversification

We know from *Lesson 1: Introduction to the Treasury*, that each bank manages assets, liabilities, and exposure to risk to ensure the bank's liquidity. Let's look at the other factors that influence the level of operational reserves.



RESERVES 2-3

Concentration of accounts

A bank with a depositor portfolio of one million accounts needs less liquidity than a bank with five big customers. If one of the one million customers closes an account, the bank won't feel much of an impact. However, if there are five customers, each representing 20% of the portfolio, the bank will certainly feel the impact if one customer decides to withdraw all of its money in one day!

Information systems

In order to calculate the amount of money we need each day, we have to know (among other things) what loans and deposits are maturing. A manual accounting system, which is usually two weeks behind, requires us to estimate the bank's daily cash needs and retain more reserves than we will need if we are doing our accounting on an on-line, real-time, 100% computerized system.

With the manual system, we never know exactly how much money we will have tomorrow; so we need an extra cushion. With the computerized system, we know our daily cash **position** and the possible variables; therefore, we need less cushion.

Geographical diversification

Two scenarios:

- 1) One-branch bank
- 2) One bank with one hundred branches all over the country

Which one needs more liquidity?

Any money which the one-branch bank has is available for use in that branch. The bank only has to retain enough operational reserves to ensure the liquidity of the one branch.



2-4 RESERVES

If there is a liquidity problem in one branch of a one hundredbranch bank, and all the reserves are in another branch, it could take, depending on the closest branch location, up to two days to transfer funds to meet the first branch's obligations. Another alternative would be to borrow the necessary funds from the local market — it could be more costly but a lot quicker. The multi-branch bank needs specific reserves in every branch, because liquidity problems have to be solved immediately.

LEGAL RESERVE REQUIREMENTS

Required by Central Bank Legal reserves are cash and other liquid assets that Central Banks require banks to keep. Usually they are larger than the operational reserves the bank would otherwise maintain. Therefore, the total amount of the legal reserves usually includes the amount of the operational reserves.

Example

For example, assume that the Central Bank imposes a legal reserve requirement of 10%.

Bank A maintains a 12% operational reserve, which exceeds the 10% legal reserve requirement.

Bank B maintains a 10% legal reserve as required, which exceeds the 8% operational reserve it would otherwise maintain.



RESERVES 2-5

In Figure 2-1, we illustrate the relationship of the legal reserve requirement to the operational reserves of Banks A and B.

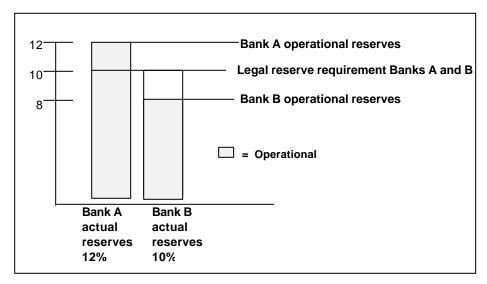


Figure 2-1: Operational reserves and legal reserve requirements

Operating reserve requirements vary over time as circumstances change. For instance, if our bank used to have only five depositors with big accounts and now it has ten thousand depositors with small accounts, it has less risk of a liquidity problem and, therefore, can reduce its operational reserves.

SUMMARY

The bank maintains two types of reserves:

- Operational reserves
- Legal reserves

Operational reserves are funds that the bank needs for financial payments and operational overhead. The amount of operational reserves is determined by the needs of the bank.



2-6 RESERVES

Legal reserves are determined by the Central Bank. The amount imposed by the Central Bank usually exceeds a bank's self-imposed operational reserves. In this case, the amount of the legal reserve includes the amount of the operational reserve.

You have just completed *Lesson 2: Reserves*. Please complete the following Progress Check before continuing to the next lesson, *Liquidity Management*. If you answer any of the questions incorrectly, you should return to the corresponding text and read that section again.



RESERVES 2-7

PROGRESS CHECK 2

Directions: Select the **best** answer(s) for each question below. Compare your answers with the Answer Key on the following page.

Question 1: T	ne amount of operational reserves is determined by:
a)	the Central Bank.
b)	commercial banks.
c)	customers.
Question 2: T	ne purpose of operational reserves is to:
a)	pay for computerized accounting systems.
b)	preserve 100% lending capacity.
c)	provide for financial payments and overhead.
d)	meet legal requirements.
Question 3: W	Thich bank needs the most operational reserves?
a)	One-branch bank
b)	Automated bank
c)	Bank with one million customers
4)	Manual-system hank

2-8 RESERVES

ANSWER KEY

- **Question 1:** The amount of operational reserves is determined by:
 - b) commercial banks.
- **Question 2:** The purpose of operational reserves is to:
 - c) provide for financial payments and overhead.
- **Question 3:** Which bank needs the most operational reserves?
 - d) Manual-system bank



RESERVES 2-9

PROGRESS CHECK 2

(Continued)

Question 4:	Legal reserve requirements are:
;	a) constant from country to country.
1	o) set once and never changed.
	e) set by commercial banks in excess of operational reserves.
	d) set by Central Banks.



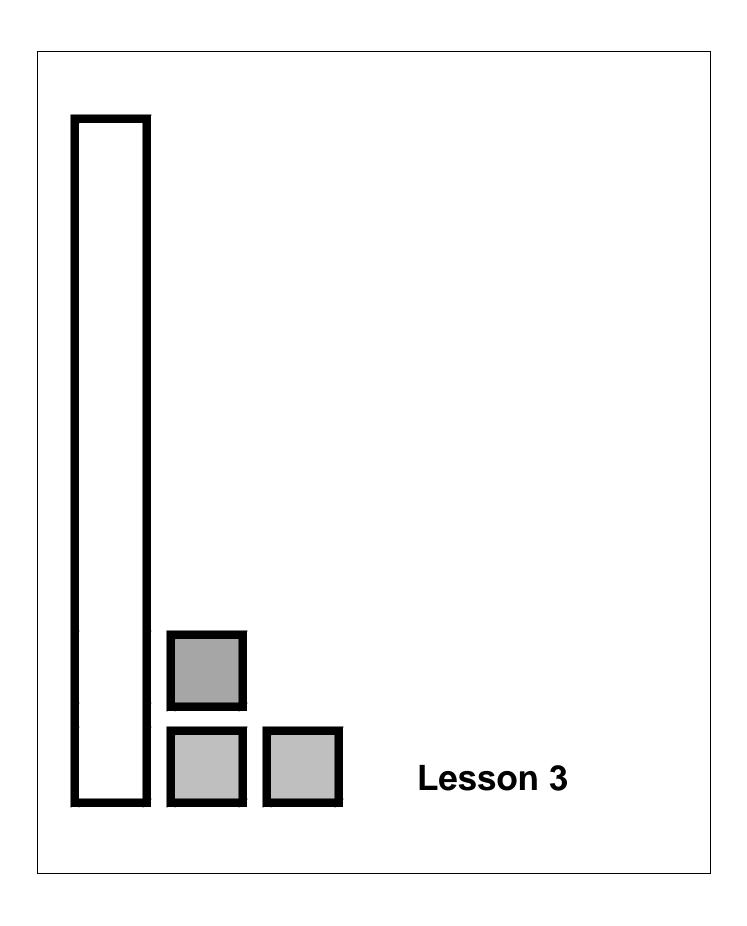
2-10 RESERVES

ANSWER KEY

Question 4: Legal reserve requirements are:

d) set by Central Banks.





LESSON 3: LIQUIDITY MANAGEMENT

INTRODUCTION

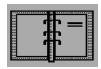
As we said before, liquidity is the ability of the bank to meet all of its financial obligations on time and fund any asset it wants to acquire. An important function of the Treasury is to manage the bank's liquidity.



OBJECTIVES

When you complete this lesson, you will be able to:

- Differentiate between managing liquidity with assets and managing liquidity with liabilities
- Recognize the cost associated with maintaining liquidity



STRATEGY

Liquidity can be managed either on the asset side or on the liability side. It is part of the Treasurer's task to set the course.

Assets

Managing liquidity on the assets side means that some of a bank's assets must be cash or easily converted to cash. For instance, a bank may establish the policy that 5% of its assets portfolio has to be on a call basis (readily available), and another percentage of assets has to be easy to sell (like marketable securities).



This presents a problem. Usually the more liquid an asset is, the less it yields. In other words, a bank has to sacrifice part of its profit in order to stay liquid.

Liabilities

Managing liquidity on the liability side means having the ability to reach new markets and new sources of funds. Banks have to establish **creditworthiness** and have credit lines instantly available when funds are required.

LIQUIDITY VS. PROFITABILITY

We said that liquidity is crucial to the bank's survival and, in the short run, more important than profitability. That concept brings up a question: Is liquidity a different issue from profitability, or is it really the same thing?

Let's assume that, at some rate, we can always get the money we need. If this is true, then liquidity is not the issue. The issue is how much we will have to pay for it, which impacts profitability.

Can we say that the problem of keeping liquid is just a problem of being willing to pay the cost? If we need the money because the customer is in front of the window and wants to be paid, we will borrow from any agent in the market that has the money, even if s/he asks an enormous rate.

If we accept the hypothesis that, at some rate, we'll always be able to get money, then liquidity is just one aspect of profitability. The only reason we have to stay liquid is to avoid paying very high rates.

Is that assumption true or not? The fact is, there comes a point where we no longer can get money.



Creditworthiness

One reason that liquidity is different from profitability has to do with creditworthiness. When the market notices that an institution is making increased use of high-rate sources, it assumes the institution is facing liquidity problems and that the risk involved in lending it money is now higher. The willingness to pay a higher rate indicates that an institution is in trouble. Consequently, it can only borrow at higher rates.

You can see that liquidity is different from profitability. Even though a bank may be willing to give up profitability, it still may not be able to buy liquidity. In other words, it is possible fo a bank to have a liquidity problem even if the bank is creditworthy.

Money supply

For example, in less developed markets, money may become scarce – for a period of time there is a temporary shortage and, even at higher rates, we cannot get money. In this situation, liquidity is a problem for the whole country.

Over time, liquidity comes back to an equilibrium. As the rates escalate higher and higher, the demand for credit in that currency *falls* and the tendency to save *increases*.

This process may take some time and, while the money supply is short, a bank may not be able to buy funds at any rate. However, liquidity problems must be solved immediately. It is not enough to repay obligations; we must pay them on time. No one will trust us if we say that we will pay when the economy comes back to equilibrium.

Liquidity: Main concern of the Treasury

Managing liquidity is the main concern of the Treasury. We are always willing to give up profitability in order to ensure liquidity, but liquidity does have a cost.

Maintaining liquidity on the asset side means that we have to keep part of our assets at lower yields. On the liability side, when we have to look for new markets, we often have to reach out to more expensive sources of funds. That means we are paying more for liquidity.



No matter what strategy a bank chooses for maintaining liquidity, we can assume that liquidity has a cost and the bank has to pay that cost in order to stay in business.

In the next three lessons we will examine three different ways that the Treasury maintains liquidity and covers the bank's exposure to risk — "Gapping Strategies," "Net Exchange Position," and "Capital Hedge."

SUMMARY

Liquidity management is the main concern of the Treasury. Liquidity may be managed on the:

- Asset side
- Liability side

Managing liquidity on the asset side means that some assets must be cash or easily converted to cash.

Managing liquidity on the liability side means having the credit to obtain funds when they are needed.

Although funds usually can be obtained if a bank is willing to pay enough, the cost may impact profitability.

The availability of funds is determined by a bank's willingness to pay, its creditworthiness, and the money supply.

You have just completed *Lesson 3: Liquidity Management*. Please complete the following Progress Check before continuing to the next lesson, *Gapping Strategies*. If you answer any of the questions incorrectly, you should return to the corresponding text and read that section again.



PROGRESS CHECK 3

Directions: Select the **best** answer for each question below. Compare your answers with the Answer Key on the following page.

Question 1	: In order to stay liquid, we have to sacrifice part of our:
	a) yield.
	b) marketable securities.
	c) creditworthiness.
	d) credibility.
Question 2	: Managing liquidity on the liability side means:
	a) determining technical reserves.
	-
	b) complying with legal reserves.
	c) establishing accessibility to new sources of funds.
	d) giving up profitability.
Question 3	3: Which one of the following statements is true?
	a) We can always get money if we are willing to pay the cost.
	b) Sometimes we can't get money at any cost.
	c) The more liquid an asset is, the more it yields.
	d) The only reason we have to stay liquid is to avoid paying very high



ANSWER KEY

- **Question 1:** In order to stay liquid, we have to sacrifice part of our:
 - a) yield.
- **Question 2:** Managing liquidity on the liability side means:
 - c) establishing accessibility to new sources of funds.
- **Question 3:** Which one of the following statements is true?
 - b) Sometimes we can't get money at any cost.



PROGRESS CHECK 3

(Continued)

Question 4: If the market rate is 10%, and we say we are willing to pay 20%:
a) we will be able to buy from any bank.
b) we can get more money.
c) our credit rating will be excellent.
d) people will suspect our creditworthiness.
Question 5: If a short money supply is a problem in our country:
a) we may not be able to buy funds at any rate.
b) we can ask our customers to wait for their money.
c) we can always buy funds at a higher price.
d) funds will be available at low rates.



ANSWER KEY

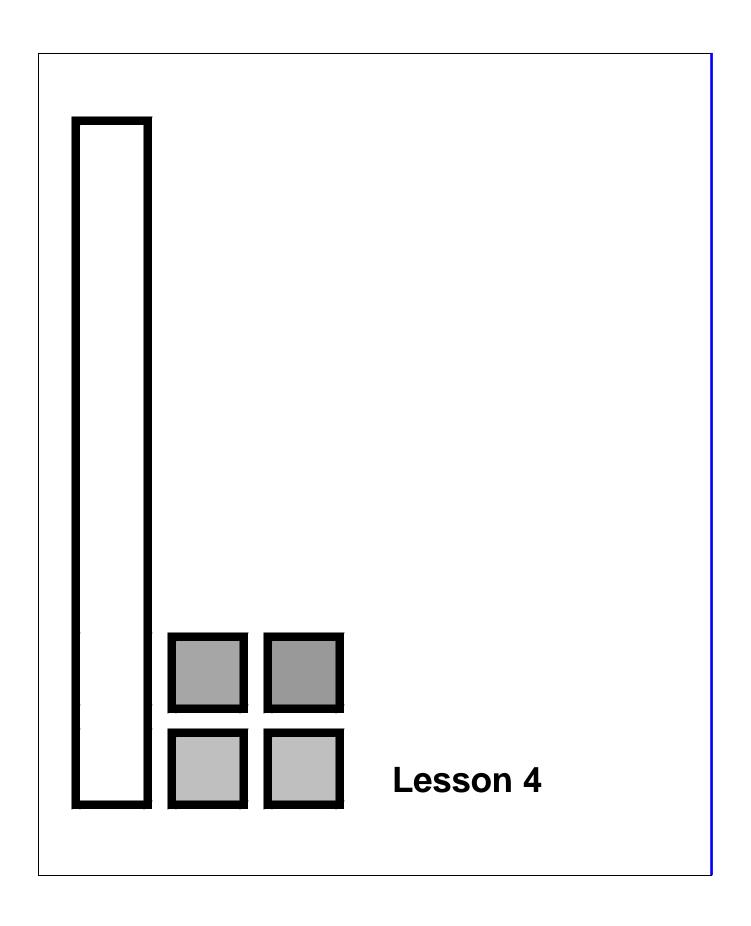
Question 4: If the market rate is 10%, and we say we are willing to pay 20%:

d) people will suspect our creditworthiness.

Question 5: If a short money supply is a problem in our country:

a) we may not be able to buy funds at any rate.





LESSON 4: GAPPING STRATEGIES

INTRODUCTION

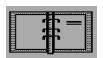
We said that liquidity is the availability of cash to meet obligations when they are due and to keep an organization operating. Anticipating the organization's need for cash, and *timing cash flows* to meet those needs, is another important function of the Treasury. If the bank can correctly anticipate those needs, it can take advantage of gapping — which is a *mismatch* between the maturities of assets and liabilities.



OBJECTIVES

When you complete this lesson, you will be able to:

- Define a negative gap and a positive gap
- Recognize the reasons for having a negative or positive gapped position
- Identify the risks resulting from gapped positions



Different tenors for assets and liabilities

NEGATIVE / POSITIVE GAPS

A gap is a difference between the tenors in our *assets* and the tenors in our *liabilities*. Creating a gap or "**gapping**" is a strategy to take advantage of expected changes in interest rates. There are two types of gaps:

- 1) Negative gap
- 2) Positive gap



4-2 GAPPING STRATEGIES

Negative Gap

Long-term assets funded/shortterm liabilities **Negative gaps** are created when we fund long-term assets with short-term liabilities. The term *negative* gap refers to the negative cash position created by a *cash outflow* at the maturity of our short term liabilities *before the cash inflow* from the maturity of our long term assets.

As we see in Figure 4-1, a negative gap is created when we make a loan for one year and fund it by taking in a six-month deposit of an equal amount.

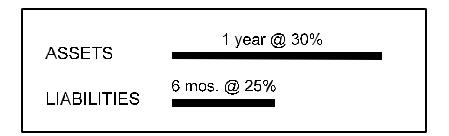


Figure 4-1: Negative gap

Gaps are created to take advantage of expected future interest rates. Current long-term market interest rates reflect both current short-term market rates and the market's expectation about future short-term rates.

If you expect that short-term interest rates will remain equal to or go below current market rates, you want to create a negative gap. That is, you want to borrow shorter maturities and lend longer maturities with the expectation that rates will be lower when it is time to renew the liability.

In Figure 4-1, the rate on the one-year loan is 30% and the rate on the six-month deposit is 25%. For the first six months we make a nice profit of 5%. In this case, we hope that short term interest rates will be at or below 25% in six months. If this happens, we will be able to renew our liability at a rate of 25% or lower and continue to make a profit of 5% or more as shown in Figure 4-2.



GAPPING STRATEGIES 4-3



Figure 4-2: Negative gap - liabilities renewed at a lower rate

We can say that a negative gap is a bet that future short-term interest rates will be equal to or less than current short-term rates.

Note: All rates in the examples are annual rates. For simplicity, these examples ignore the effect of compounding on interest rates.

Price risk

Rates may move in the other direction, however, forcing us to renew our liabilities at a higher rate. We may have to pay 40% to get the funds and wipe out all the profits from the first six months with the losses that we incur during the second part of the year. In other words, we make a profit of 5% for the first half of the year, and lose 10% for the second half of the year for a total loss of 5% on the amount of the loan.

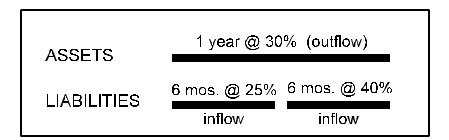


Figure 4-3: Negative gap – liabilities renewed at a higher rate



4-4 GAPPING STRATEGIES

Obviously, this loss will have an impact on profitability. When we create a gap between our assets and our liabilities, we carry a price risk. That is the risk that it there will be a cost to close the gap.

Liquidity risk

A loss is a problem, but it is not the worst thing that can happen. It will be even worse if, after six months, we are unable to get the funds at all. If we can't get the funds at any rate, we face a liquidity problem.

So a negative gap involves *both* a price risk and a **liquidity risk**. The most important issue is that we may face a liquidity problem and, if not, we may still face the problem of adverse price movements.

Now let's look at the opposite situation.

Positive Gap

Short-term assets / longterm liabilities A **positive gap** is a short-term asset funded with a long-term liability. The term *positive* gap refers to the excess cash we have when we *receive cash* from the maturity of our short term assets *before* we pay on the maturity of our long term liabilities.



GAPPING STRATEGIES 4-5

Suppose that we make a loan for six months at the rate of 30% and accept a deposit for one year at the rate of 25%, as shown in Figure 4-4. For six months we make a nice profit of 5%. If short-term rates remain the same (or increase), we will continue to make a profit.



Figure 4-4: Positive gap

If six-month rates go up (say to 40%) as shown in Figure 4-5, we have an opportunity to make more money.

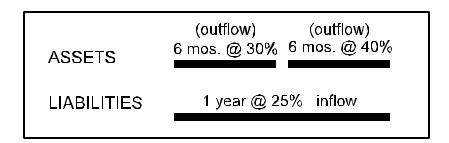


Figure 4-5: Positive gap – funds placed at a higher rate

We can say that a positive gap is a bet that future short-term market interest rates will be equal to or higher than current market rates.

Price risk

Price risk arises if we have to place the funds at lower rates (say 20%), or if we cannot place them at all and have to keep them in the vault at a 0% rate (see Figure 4-6).



4-6 GAPPING STRATEGIES



Figure 4-6: Positive gap – funds placed at a lower rate

We do not have <u>liquidity</u> risk in a positive gap, but we do have <u>price</u> risk. In the worst possible case, we have excess money that is not earning any money for us!

Gapping Strategies Summary		
	NEGATIVE GAP	POSITIVE GAP
FUNDING	Long-term asset funded with a short-term liability	Short-term asset funded with a long-term liability
INTEREST RATE EXPECTATION	Future short-term rates will be less than or equal to current market rates	Future short-term rates will be greater than or equal to current market rates
RISKS	Price and liquidity	Price

Figure 4-7: Negative and Positive Gapping

RISK MANAGEMENT

Acceptable level of risk

We said that the task of the Treasury is to manage assets and liabilities. "Manage" does not necessarily mean "match." *Manage means having an acceptable level of risk and monitoring it every day according to market conditions.*



GAPPING STRATEGIES 4-7

When we create gapping strategies, we assume a direction in interest rates. We decide what percentage of our portfolio we are willing to risk. Then we control our position by monitoring daily to make sure we have not exceeded our targeted risk position — and that our target is appropriate, given existing market conditions.

When we take a positive gap position, we are betting that future short-term market rates will be higher than what the market presently reflects. When we take a negative gap position, we are betting just the opposite. We can either make money or lose our bet; and, in the case of a negative gap, we can even lose our bank!

SUMMARY

Gapping is a strategy to take advantage of expected changes in interest rates. A gap is the difference between the tenors in our assets and the tenors in our liabilities.

A negative gap is a negative cash position that is created when the tenor of assets is longer than the tenor of the offsetting liabilities. A negative gap is created to take advantage of an expected decrease in short-term interest rates.

A negative gap creates price risk (the risk that we will have to renew our liabilities at a higher rate) and liquidity risk (the risk that we will be unable to renew our liabilities).

A positive gap is a position in which we have excess cash due to offsetting short-term assets with long-term liabilities. A positive gap is created to take advantage of an expected rise in short-term interest rates.

The price risk in a positive gap position is the risk that we will have to place the funds at a lower rate or that we will not be able to place them at all.



4-8 GAPPING STRATEGIES

You have just completed *Lesson 4: Gapping Strategies*. Please complete the following Progress Check before continuing to *Lesson 5: Net Exchange Position*. If you answer any of the questions incorrectly, you should return to the corresponding text and read that section again.



GAPPING STRATEGIES 4-9

PROGRESS CHECK 4

Directions: Select the one **best** answer for each question below. Compare your answers with the Answer Key on the following page.

Questi	on 1:	Which of the following is an example of a negative gap?
-		a) Make a loan for one year at 15% and fund it with a six-month deposit at 10%.
-		b) Make a loan for six months at 25% and fund it with a one-year deposit of 20%.
-		c) Make a loan for six months at 25% and fund it with a one-year deposit of 30%.
-		d) Make a loan for one year and don't fund it at all.
Questi	on 2:	A negative gap is a bet that future short-term market rates will:
_		a) be equal to or higher than current market expectations.
-		b) match current market expectations.
-		c) be equal to or lower than current market expectations.
-		d) be higher than or lower than current market expectations.
Questic	on 3:	We have granted a loan for one year at 30%. We can fund it for six months at 25%, but at the end of six months we do not get another deposit. What is our worst problem?
_		a) Liability
-		b) Liquidity
-		c) Profitability
		d) Market conditions

4-10 GAPPING STRATEGIES

ANSWER KEY

- **Question 1:** Which of the following is an example of a negative gap?
 - a) Make a loan for one year at 15% and fund it with a six-month deposit at 10%.
- **Question 2:** A negative gap is a bet that future short-term market rates will:
 - c) be equal to or lower than current market expectations.
- **Question 3:** We have granted a loan for one year at 30%. We can fund it for six months at 25%, but at the end of six months we do not get another deposit. What is our worst problem?
 - b) Liquidity



GAPPING STRATEGIES 4-11

PROGRESS CHECK 4

(Continued)

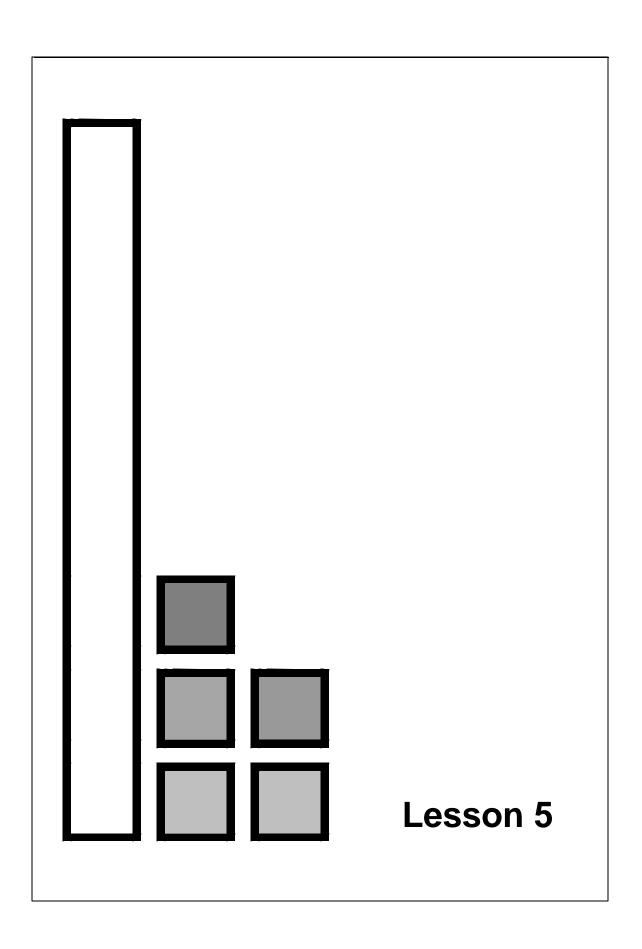
Questi	ion 4:	Wl	hich of the following is an example of a positive gap?
		a)	Make a loan for one year at 12% and fund it with a six-month deposit at 8%.
		b)	Make a loan for six months at 10% and fund it with a one-year deposit at 6%.
		(c)	Make a loan for one year at 30% and fund it with a six-month deposit at 25%.
		_d)	Make a loan for six months at 10% and fund it with a six-month deposit at 8% .
Questi	ion 5:	Wl	hen creating a positive gap, we assume:
		a)	a liquidity risk and a price risk.
		b)	a price risk.
		(c)	only a liquidity risk.
		d)	that rates are going down.
Questi	ion 6:	Ga	apping strategies work best if we:
		a)	match them to our policy and match our policy to market conditions.
		b)	are consistent in our choice of negative or positive gapping strategies.
		c)	forget about trying to make a profit.
		d)	focus only on the important issue of liquidity.



ANSWER KEY

- **Question 4:** Which of the following is an example of a positive gap?
 - b) Make a loan for six months at 10% and fund it with a one-year deposit at 6%.
- **Question 5:** When creating a positive gap, we assume:
 - b) a price risk.
- **Question 6:** Gapping strategies work best if we:
 - a) match them to our policy and match our policy to market conditions.





LESSON 5: NET EXCHANGE POSITION

INTRODUCTION

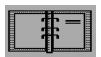
Changes in foreign exchange positions arise continuously as a result of underlying market changes. It is the Treasury Department's responsibility to coordinate the bank's position in the various currencies. In this lesson, you will find out what it means to take a "position" in a currency.



OBJECTIVES

When you complete this lesson, you will be able to:

- Identify a net overbought and net oversold position
- Understand the strategy of creating net exchange positions



WHAT IS NET EXCHANGE POSITION?

The net exchange position (NEP) is the difference between the amount of a currency that is bought and the amount of the same currency that is sold, or the difference between the assets and the liabilities in a currency.

NEP = Assets in a currency - Liabilities in the same currency

If the difference is a *positive* amount (assets <u>greater</u> than liabilities), we have a positive net exchange position, or an **overbought** (**long**) **position**.



If the difference is a *negative* amount (assets <u>less</u> than liabilities) we have a negative net exchange position, or an **oversold (short) position**.

If our assets and liabilities in a currency are *equal*, we have a **square position**.*

* **Note:** Throughout this lesson, we refer to assets and liabilities on a *present-value basis*. Whenever the timing of asset inflows or liability outflows differ, we must take into account the fact that the value of money changes over time.

Net Overbought Position

Let's assume for the purpose of this lesson that we are dealing in only two currencies.

Assets greater than liabilities

In Figure 5-1, we can see that the assets in US dollars are greater than the liabilities in US dollars, creating a positive net exchange position in dollars.

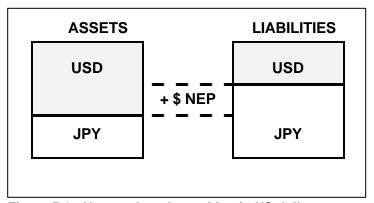


Figure 5-1: Net overbought position in US dollars

In this case, we are overbought (long) in US dollars. We are overbought in a currency when the assets exceed the liabilities.



Net Oversold Position

Assets <u>less</u> than liabilities The opposite of an overbought position is an oversold (short) position. We are oversold in a currency when the assets are <u>less</u> than the liabilities. In Figure 5-2, we can see that we have more liabilities in Japanese Yen than we have assets, and therefore we have a net oversold position in Yen.

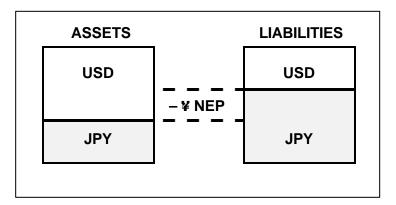


Figure 5-2: Net oversold position in Yen

A net exchange position arises when assets in one currency are financed through liabilities in another currency. In Figure 5-2, USD assets are funded by JPY liabilities. Since total assets and liabilities have to match, we cannot be long in one currency unless we are short in another.

ASSESSING EXPOSURE TO RISK

It is important to know what our net exchange position is in each currency so we can assess our exposure to risk. A net exchange position may create a profit or a loss depending on whether we hold an overbought or oversold position and on whether the currency revalues or devalues.



Currency Revaluation / Devaluation

When a currency **revalues**, it increases in value when expressed in terms of another currency. In other words, if you have \$100 and it revalues by 10% against Japanese yen, you do not have \$110, but you can purchase \$110 worth (10% more) of yen for your \$100. If a currency **devalues**, it decreases in value.

Profit from revaluation of overbought currency Let's say that the US dollar revalues (increases in value) and the yen devalues (decreases in value) by 10%. Our assets denominated in US dollars, when expressed in terms of yen, increase by 10%. Our liabilities denominated in US dollars, when expressed in terms of yen, also increase by 10%.

Since 10% of the asset in the overbought currency has more value than 10% of the liability in the same currency, we increase the value of our assets more than the value of our liabilities — and we make a profit.

For example, assume that we have a \$100 asset, while we have only a \$50 liability. If the dollar increases its value by 10% related to yen, the value of the assets becomes \$110 — while the value of the liability becomes \$55. We increase the value of our assets by \$10 and the value of the liability by only \$5, so we have a profit of \$5. (Figure 5-3)

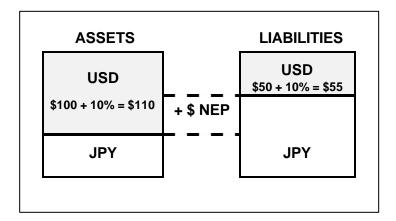


Figure 5-3: Net overbought position



We make money when a currency in which we are overbought (US dollar) revalues, or when a currency in which we are oversold (yen) devalues.

Loss from revaluation of oversold currency The *opposite* happens if the currency in which we are oversold revalues and the currency in which we are overbought devalues. In this case, our liabilities increase more than our assets and we have a loss. (Figure 5-4)

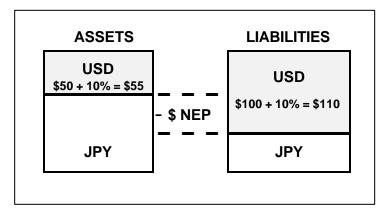


Figure 5-4: Net oversold position

We *make money* when a currency in which we are overbought revalues, or a currency in which we are oversold devalues. We *lose money* when a currency in which we are overbought devalues, or a currency in which we are oversold revalues. (Figure 5-5)

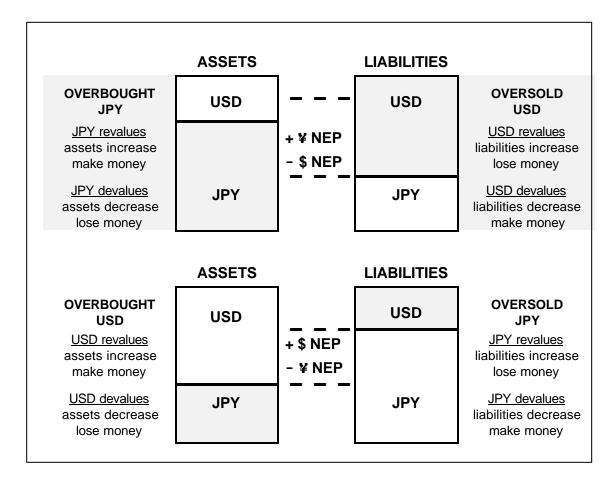


Figure 5-5: Net exchange position – exposure to risk and opportunity for profit

Strategy

We want to <u>make</u> money not <u>lose</u> money, so our strategy is to have a net exchange position that is overbought in the currencies we expect to revalue, and oversold in the currencies we expect to devalue.



SUMMARY

Net exchange positions are used by the Treasury as a tool for maintaining liquidity and covering risk exposure for the bank.

A net exchange position is the difference between the assets in a currency and the liabilities in the same currency.

If the difference is positive, we have an *overbought* position. If the difference is negative, we have an *oversold* position.

If a currency in which we are overbought revalues, we make money. If it devalues, we lose money.

If a currency in which we are oversold revalues, we lose money. If it devalues, we make money.

Establishing advantageous net exchange positions is one way the Treasury can make money for the bank.

You have just completed *Lesson 5: Net Exchange Position*. Please complete the following Progress Check before continuing to *Lesson 6: Capital Hedge*. If you answer any of the questions incorrectly, you should return to the corresponding text and read that section again.



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PROGRESS CHECK 5

Directions: Select the one **best** answer for each question below. Compare your answers with the Answer Key on the following page.

Questio	on 1:	Currency A is 60% of the assets and 20% of the liabilities. Currency B is 40% of the assets and 80% of the liabilities. The net exchange position for each currency is:
_		a) net oversold in currency A and net overbought in currency B.
_		b) net overbought in currency A and net oversold in currency B.
Questio	on 2:	Our net exchange position measures:
_		a) volume of transactions.
_		b) balance of payments.
_		c) exposure to risk.
_		d) liquidity.
Questio	on 3:	If we have a net oversold position in currency A and it revalues, we will:
_		a) make money.
_		b) lose money.
_		c) become overbought in currency A.
_		d) risk our position.



ANSWER KEY

- **Question 1:** Currency A is 60% of the assets and 20% of the liabilities. Currency B is 40% of the assets and 80% of the liabilities. The net exchange position for each currency is:
 - b) net overbought in currency A and net oversold in currency B.
- **Question 2:** Our net exchange position measures:
 - c) exposure to risk.
- **Question 3:** If we have a net oversold position in currency A and it revalues, we will:
 - b) lose money.



PROGRESS CHECK 5

(Continued)

Question 4:	We predict that currency B will devalue, so we take a position that is:		
	a) net oversold in currency A.		
	b) squared.		
	c) net oversold in currency B.		
	d) net overbought in currency B.		

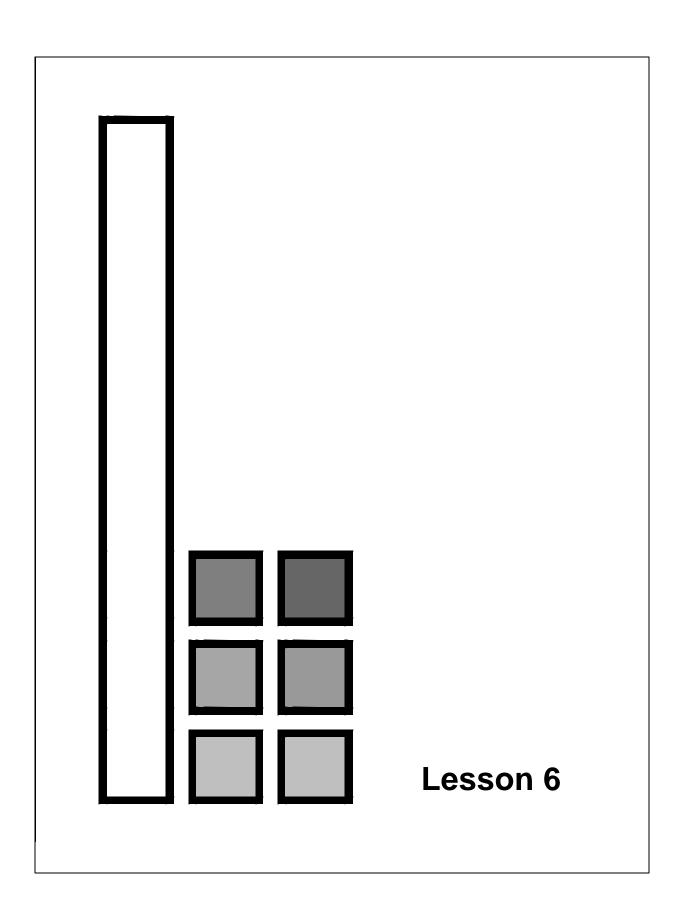


ANSWER KEY

Question 4: We predict that currency B will devalue, so we take a position that is:

c) net oversold in currency B.





LESSON 6: CAPITAL HEDGE

INTRODUCTION

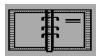
Let's look at our assets and liabilities in more detail. We'll separate out our capital, and look at it from the Head Office point of view and from the local branch or subsidiary point of view.



OBJECTIVES

When you complete this lesson, you will be able to:

- Recognize two viewpoints on capital
- Define a capital hedge
- Identify some problems associated with capital hedging



CAPITAL

If capital is sent from the Head Office to a branch in another country, in what currency is the capital (net worth) denominated? (See Figure 6-1)



6-2 CAPITAL HEDGE

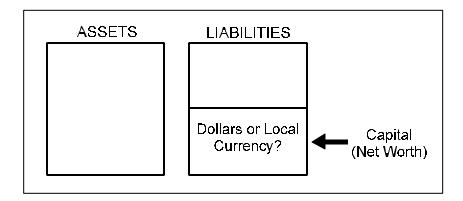


Figure 6-1: Is capital denominated in dollars or local currency?

Capital on the Local Books

Capital
denominated in
local currency

The answer depends on your point of view. From the legal and accounting point of view, capital is denominated in the local currency of the country in which the branch is located. Regulations in some countries require us to present our accounting of capital in the local currency.

Let's assume that the branch doesn't have any deposits or loans in foreign currencies. From the point of view of the local books, the net exchange position is zero. There is no gain or loss if the local currency devalues against the dollar. (Figure 6-2)

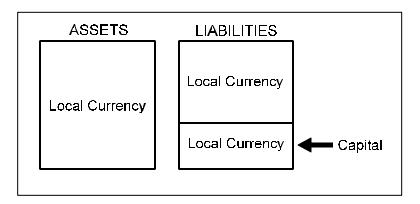


Figure 6-2: Local branch view of capital



CAPITAL HEDGE 6-3

Capital on Head Office Books

Capital denominated in dollars Our shareholders have a different point of view. They invested dollars, sold them in the foreign exchange market, and received local currency with which they capitalized the branch or subsidiary and started operations.

From the point of view of the Head Office, capital is denominated in dollars. (Figure 6-3)

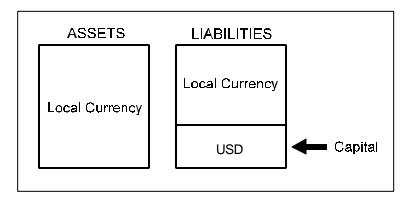


Figure 6-3: Head Office view of capital

As far as the Head Office is concerned, the net exchange position is:

- Overbought in local currency
- Oversold in US dollars

Risk

When we are overbought in local currency and oversold in dollars, our risk is that local currency will devalue against the dollar. If that happens, our shareholders take a loss.



6-4 CAPITAL HEDGE

Comparison of Both Points of View

Let's recap the two points of view:

	Head Office	Local Books
NET EXCHANGE POSITION	Overbought in local currency	Square
	Oversold in dollars	
IMPACT OF LOCAL CURRENCY DEVALUATION	Loss	Zero impact

Figure 6-4: Head Office and local branch view of capital and the impact of local currency devaluation

STRATEGY

Hedging

Cover the risk

What strategy would we use to prevent those losses? We would **hedge** our capital investment to cover our risk. The risk occurs from the Head Office point of view because we are oversold in dollars. In order to square our net exchange position, we have to buy dollars.

Head Office square position

What happens after we buy dollars? Let's assume that we buy the same amount of dollars as our capital. Now we have the same amount of dollar assets as we have dollar liabilities. (Figure 6-5)



CAPITAL HEDGE 6-5

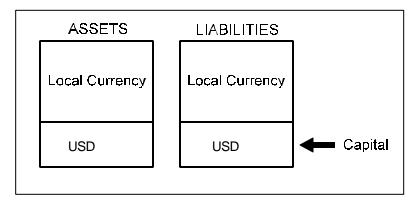


Figure 6-5: Head Office point of view – square position

Local books; overbought in dollars From the point of view of the Head Office, we are square. However, from the point of view of our local books, we are no longer square. We have taken an overbought position in dollars. (Figure 6-6)

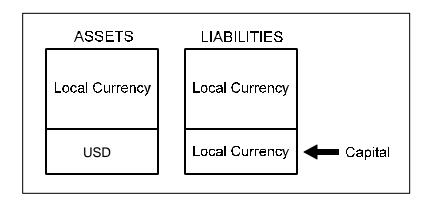


Figure 6-6: Local branch point of view – overbought position in USD

Profit

Now, what happens if there is a devaluation of the local currency? In terms of the Head Office, there is no impact because of the square net exchange position. From the point of view of the local books, we have a profit.



6-6 CAPITAL HEDGE

Let's recap the two points of view:

	Head Office	Local Books
NET EXCHANGE POSITION	Square	Net overbought in USS
		Net oversold in local currency
IMPACT OF LOCAL CURRENCY DEVALUATION	Zero impact	Profit

Figure 6-7: Head Office and local branch view of a hedge on capital investment

Capital Hedge

This process of keeping an amount of dollar assets in an amount at least equal to our capital is called **capital hedge**. In other words, we are holding an asset denominated in the currency of the Head Office country at least in an amount equal to our capital. (Figure 6-8)

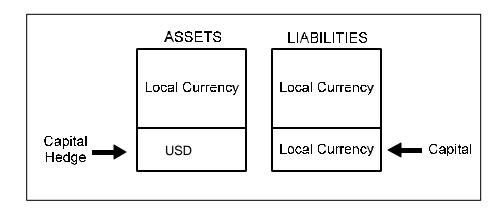


Figure 6-8: Capital hedge



CAPITAL HEDGE 6-7

Problems

Local taxes

Everything is fine *except for one small detail*. If we make profits in local currency, they are subject to local taxes. Even though we are hedged, we lose money because of the taxes.

Local regulations

Capital hedge looks like a simple strategy to use, but it is complicated by local regulations. If there is no free exchange market in that country, we may not be able to buy dollars. Then we have to buy assets denominated in dollars that are legal according to local regulations. One possibility might be holding bonds denominated in dollars or adjusted to dollar fluctuation. Since we can't find this type of instrument in every country, we may have to look for a more creative way to hedge our capital investment.

A Possible Solution

Head office booking

If it is possible to book the capital hedge on the head office books and not report the position to local regulators, then the local books will be square and the head office capital will be hedged.

SUMMARY

Capital can be viewed two ways. From the legal and accounting perspective, it is denominated in the local currency of the branch. From the point of view of the Head Office, it is denominated in dollars.

Hedging is the strategy used to prevent losses that may arise from exchange rates / movements.



6-8 CAPITAL HEDGE

A branch hedges a capital investment by buying enough dollars to make its dollar assets equal its capital.

You have just completed *Lesson 6: Capital Hedge*. Please complete the following Progress Check before continuing to *Lesson 7: The Treasury as a Profit Center*. If you answer any of the questions incorrectly, you should return to the corresponding text and read that section again.



CAPITAL HEDGE 6-9

PROGRESS CHECK 6

Directions: Select the **best** answer for each question below. Compare your answers with the Answer Key on the following page.

Question	1: We are required by local regulations to account for capital:
	a) in home office currency.
	b) only on the books.
	c) in local currency.
	d) as an asset.
Question	2: From the viewpoint of the shareholders in New York, capital is:
	a) our net exchange position.
	b) a dollar investment.
	c) the currency of the branch.
	d) foreign exchange.
Question	3: If local currency devalues, the impact on capital on the Head Office books is:
	a) insignificant.
	b) a loss.
	c) zero.
	d) a profit.

6-10 CAPITAL HEDGE

ANSWER KEY

- **Question 1:** We are required by local regulations to account for capital:
 - c) in local currency.
- **Question 2:** From the viewpoint of the shareholders in New York, capital is:
 - b) a dollar investment.
- **Question 3:** If local currency devalues, the impact on capital on the Head Office's books is:
 - b) a loss.



CAPITAL HEDGE 6-11

PROGRESS CHECK 6

(Continued)

Question 4:	If local currency devalues, the impact on capital from the local book's point of view is:
	_a) a loss.
	_b) zero.
	_c) a profit.
	_d) a net exchange position.
Question 5:	A capital hedge is:
	a) holding an asset denominated in the currency of the Head Office country in an amount equal to, or more than, the branch's capital.
	_b) holding a liability denominated in the currency of the Head Office country that is equal to the capital.
	_c) holding an asset denominated in local currency that is equal to the capital.
	_d) keeping assets in an amount at least equal to our capital.
Question 6:	Select two problems associated with capital hedging.
	_a) Local assets denominated in dollars are illegal.
	_b) A loss may occur resulting from local taxes.
	_c) Local currency profits are subject to taxes in the country of the Head Office.
	_d) Capital hedging is traditionally done with dollar-denominated bonds (which are not available to the branches).
	_e) Local regulations may prevent the purchase of dollars.

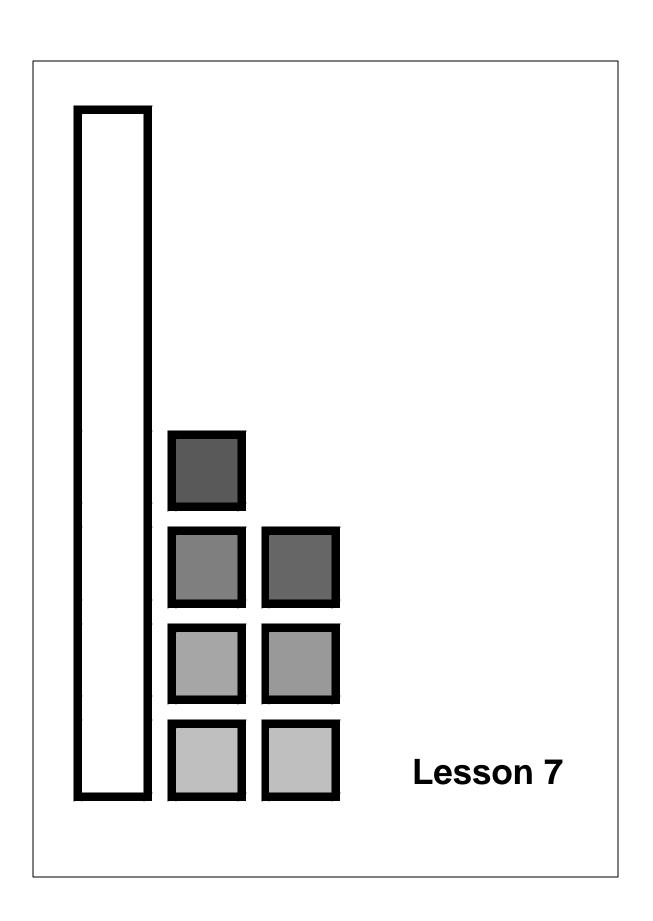


6-12 CAPITAL HEDGE

ANSWER KEY

- **Question 4:** If local currency devalues, the impact on net worth from the local book's point of view is:
 - b) zero.
- **Question 5:** A capital hedge is:
 - a) holding an asset denominated in the currency of the Head Office country in an amount equal to, or more than, the branch's capital.
- Question 6: Select two problems associated with capital hedging.
 - b) A loss may occur resulting from local taxes.
 - e) Local regulations may prevent the purchase of dollars.





LESSON 7: THE TREASURY AS A PROFIT CENTER

INTRODUCTION

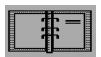
In Lessons 1 through 6 we discussed the role of the Treasury in managing funds to preserve the bank's liquidity and to cover the bank's exposure to risk. In this lesson, we explore the Treasury's role as a *profit center*.



OBJECTIVES

When you complete this lesson, you will be able to:

- Recognize the Treasury's position in the bank
- Identify the tools used by the Treasury to achieve its goals
- Recognize the objective of the transfer pool rate
- Identify uses of the transfer pool rate
- Recognize the Treasury's role as a profit center



POSITION OF TREASURY IN THE BANK

We began this course by saying that the main functions of the bank are to take funds in and lend funds out – and that inside the bank we have sectors that concentrate on each of those functions.



Roles in the Bank

Intermediary

The Treasury functions as an intermediary between the **borrowing** and **lending** sectors, and it exists for the purpose of coordinating the flow of funds (Figure 7-1). Specifically, it coordinates the amount, tenors, currencies, and positions.

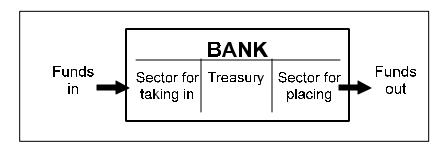


Figure 7-1: Treasury functions as an intermediary

Dealer in the market Theoretically, the Treasury could be an internal sector of the bank that had no contact with the market. In reality, however, the Treasury has to borrow and place funds on its own instead of relying on the other sectors of the bank that ordinarily perform that function. Let's see why this is the case.

Look at the organization chart of the bank:

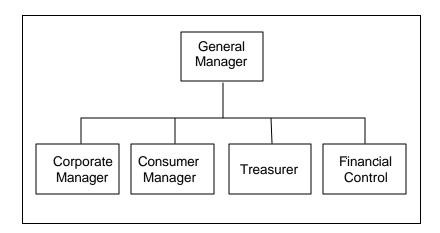


Figure 7-2: Organizational chart



Equal to other departments

Since all departments are on the same hierarchical level, the Treasurer is not in a position to impose policies on the other departments of the bank. S/He cannot mandate tenors, currencies, or volumes of loans and deposits.

A corporate manager or a consumer manager will manage that department's business, which is lending money, according to the manager's own objectives.

Treasury Objective

The objective of the Treasury is to manage the bank's assets and liabilities and purchase / sell securities to:

- Ensure liquidity
- Create gapping positions
- Open net exchange positions
- Hedge capital

How does the Treasurer achieve this objective without control over the departments that borrow and lend funds? We will look at these tools that the Treasury uses to achieve its goals:

Indirect Tools

- ALCO meetings
- Transfer pool rate

Direct Tool

Direct dealing in the markets



INDIRECT TOOLS

Influence on rates

The Treasury is not directly involved in the rate-setting process. Account officers and customers negotiate rates. However, the Treasurer can influence the rates quoted by other sectors of the bank.

ALCO

Membership

One opportunity to influence rates is to take part in ALCO (Assets and Liabilities Committee) meetings. The ALCO is a committee made up of:

- Country Head
- Treasurer (ALCO secretary)
- Corporate Bank Head
- Individual Bank Head
- Financial Controller
- Economist

Responsibilities

ALCO meets to:

- Analyze market conditions and the bank's position relative to market conditions
- Determine immediate strategies to follow
- Set guidelines for bank operations in relation to tenors, currencies, gapping, etc.
- Assign responsibilities for following the guidelines to different bank departments



The committee meets no less than once a month — and usually meets weekly. The frequency of meetings depends on the volatility of the markets.

Treasurer's role

The Treasurer's role in ALCO meetings is to:

- Present the Treasury Department's view of current market conditions and the bank's position in relation to the markets
- Suggest strategies for the bank to follow
- Keep a record of the meeting and send copies to the other committee members. This record is checked in any Treasury audit.

The committee discusses the recommendations of the Treasurer and makes decisions about bank operations.

Transfer Pool Rate

Internal rate for transferring liquidity

One tool that was created for the Treasury to set a rate and transfer liquidity is the **transfer pool rate**.

Imagine funds flowing from the depositing customer to the branch officer, to the Treasury, to the lending officer, and then to the borrowing customer. Each sector transfers or sells its funds to the next one.

■ Branch Officer:

- Pays 9% to customer
- Transfers those funds to the Treasury at the rate of 10%
- Makes a profit of 1%



Treasury (Interbank Trader):

 Transfers the funds to the lending officer for 10%

■ Lending Officer:

- Lends the funds at a higher rate, say 11%
- Makes a profit of 1%

■ Bank:

- Makes a profit of 2%

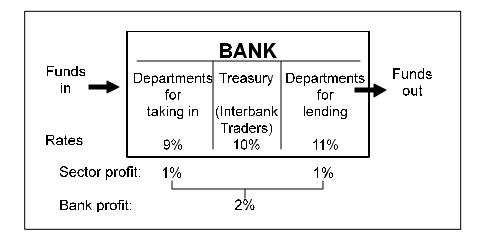


Figure 7-3: Funds flow from investing customer to issuing customer

As you can see in Figure 7-3, the 9% is negotiated between the *investor* and the bank, and the 11% is negotiated between the *borrower* and the bank.



Fixing the Rate

Equal to available market rate The rate that the Treasurer pays for use of funds, or charges the lender of funds, should be the rate at which the Treasury will be able to directly borrow or place funds in the market.

In other words, Treasurer pays 10% for the funds because s/he would have to pay 10% to get them in the market, and charges 10% for the funds because s/he could place them in the market at 10%. The rate the Treasurer pays or charges should be the current, or prevailing, rate today.

Example

Let's assume that six months ago we borrowed funds for one year at 8%, and lent funds for six months at 9%. After six months the borrower repaid the loan. The bank gets the money back and wants to reloan that money to another customer, but the market rate is now 10%. (Figure 7-4)

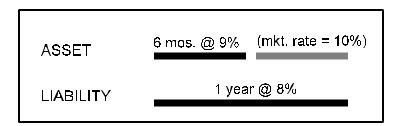


Figure 7-4: Cost of funds is 8% and market rate is 10%

The corporate bank could say, "Why should we pay the Treasury's rate of 10% for the funds when the funds only cost 8%?"

Opportunity cost

The fact is that if the Treasury does not pass the funds along at the prevailing rate, it loses the opportunity to make a profit. In other words, there is an **opportunity cost** for the funds. The opportunity cost is the best investment the Treasury might make with the funds in the interbank market.



Updated daily to market conditions

If the corporate bank doesn't pay at least what the Treasury can get in the market, the Treasurer is better off to deal directly with the market. So, the transfer pool rate has to be updated every day to market conditions, regardless of the original cost of funds.

We also have to take into account that we have many sources of funds, such as current accounts, savings accounts, time deposits, etc. We have a large set of liabilities and a large set of assets, and it isn't possible to know which liability finances which asset. All the liabilities finance all the assets.

Even if the whole portfolio has an average cost of 8%, the corporate bank will still have to pay 10% to cover the opportunity cost. The transfer pool rate has to be the marginal cost of funds; that is, the cost of getting new money into the bank today.

Theoretically, the pool rate should be set at a level that encourages the branch officer needing funds to get the highest amount of funds possible at the cheapest cost. The more funds s/he gets at a lower rate than the pool rate, the more of a spread s/he makes. The lending officer that has funds is also trying to make as many placements as possible at a rate higher than the pool rate.

Many countries used to have a policy that the pool rate was not established by the Treasurer, but by a formula which represented the cost of funds in the market based on objective data taken from the market itself.

One problem with this system is that the market rate represents the *market's* need of funds, but doesn't necessarily represent the *bank's* need of funds. This practice has been abandoned in favor of a more flexible approach. Treasurers are still required to keep an eye on market rates, but they now fine-tune the pool rate to meet the bank's needs.



Adjusting the pool rate

Thus, when our liquidity is low, we increase the pool rate, so the taker can pay higher rates and take in more funds. When we have an excess of funds, we reduce the rates so the placer can lend at lower rates and place more funds.

Pool Rates for Different Tenors

Since there are as many rates as tenors to manage our gapping, we have to establish one pool rate for every specific tenor, or at least for the most representative. For example, instead of saying that the pool rate is 10%, we say the pool rate is 10% for three-month funds, while the pool rate for one-month funds is 9%, etc.

Encourage or discourage deals

By establishing a set of pool rates, we either encourage or discourage the sectors that take funds and place funds to make deals. Let's say the market is dealing at the following rates:

> 1 month @ 9 1/2% 3 months @ 9 3/4% 6 months @ 10%

For the sake of simplicity, let's say that these rates apply to both borrowing and lending. If we expect that rates are going to fall, we want to create a negative gap by borrowing short term funds and lending long-term funds.

How can we encourage our commercial sectors to create a negative gap such as this one? What pool rate will we set?



If, in one month, we want liabilities and we don't want assets, we will raise the one-month pool rate. By raising the pool rate, we make it easier to attract funds and more difficult to lend funds in the short term market. If the market is lending one-month funds at 9 1/2%, and we set our one-month rate at 9 3/4%, the lending officer can only profitably reach the customers who are willing to pay the higher rates. If the lending officer is willing to accept a loss on a loan in order to maintain a very profitable customer relationship, s/he may lend at a rate below the transfer pool rate.

One-month rates:

Market rate: 9 1/2%

Pool rate: 9 3/4% } Encourage bank borrowings

Discourage bank loans

If we know we want assets in six months, we lower our six-month rate below the market rate and set it at 9 3/4%. In this case, the lending officer will be more comfortable because the lower rate attracts longer term borrowers. The deposit officer will be uncomfortable because only 9 3/4% can be paid to depositors of six-month funds when the market is paying 10%.

Six-month rates:

Market rate: 10%

Pool rate: 9 3/4% } Encourage bank loans

Discourage bank borrowings

Risk

If the rates don't go down and our gapping strategy doesn't work, the bank as a whole, and specifically the Treasury, gets hurt. The pool rate is supposed to represent the marginal cost of funds. However, it is difficult to determine the market's marginal cost of funds. We can never exactly identify the market or the most representative rate.



Additionally, we have one more problem. Let's say that we need USD 100 million and the current market rate is 10%. It is possible that we will have to pay more, say 10 1/2%, for such a large amount.

It is never clear what the marginal cost of funds has to be, and that always creates problems between the different sectors of the bank.

DIRECT TOOLS

The pool rate as a type of incentive system isn't always enough to get the liquidity, gapping, and net exchange position to the point we want them to be. Since the financial variables of the bank have to be managed, and the pool rate which the Treasury manages directly is not enough to accomplish this, we need another solution.

Direct Dealing in the Markets

Treasurers realized that the pool rate system was not enough to encourage the bank's commercial sector to provide sufficient funds in the amounts, tenors, or currencies we would like. It became necessary to create a group of people in the Treasury to take funds directly from customers when funds were needed, and to place excess funds directly with customers. (Figure 7-5)



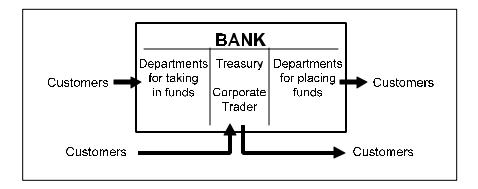


Figure 7-5: Treasury deals directly with the markets

Corporate dealing desks

In other words, it became necessary to create corporate dealing desks within the Treasury. Now, when branch officers in the other departments are not able to place funds at all, or not for the rate or tenor the Treasury expects, the Treasury can do it on its own. Corporate dealers in the Treasury deal directly with customers within markets.

To deal with customers (i.e. banks or corporations), the Treasury needs:

- People
- Systems (communications, computers)

Profit center

These requirements have a cost. Once the bank has people in the Treasury making deals, it can take advantage of their skills. In addition to their function of supplying or placing funds, they can also cover costs and make a profit. As long as they are getting funds from Bank X and placing funds with Y Corporation, they can make a little spread in the process.



This type of business has become more important. The Treasury wasn't expected to be profitable when it only passed funds over from one sector of the bank to the other. Once it became necessary for the Treasury to have dealing desks and trade directly with customers, the Treasury became a profit center for the bank.

SUMMARY

The function of the Treasury is to coordinate the flow of funds between the borrowing and lending sectors of the bank. Certain direct and indirect tools are available to the Treasurer to achieve the department's objectives, including:

- ALCO meetings
- The transfer pool rate
- Direct dealing in the markets

The Treasurer can control the flow of funds indirectly by influencing rates quoted by other sectors in the bank. As a member of ALCO, the Treasurer makes recommendations which may impact the quoted rates. The transfer pool rate is the cost for moving funds through the Treasury from the depositing customer to the customer who is borrowing the money from us. The Treasury passes funds along at the prevailing market rate to cover the opportunity cost. The pool rate is updated daily according to market conditions.

To control the flow of funds more directly, the Treasury created its own corporate dealing desks. Now that the Treasury deals directly with customers, it is a profit center for the bank.



You have just completed *Lesson 7: The Treasury As A Profit Center*. Please complete the following Progress Check before continuing to *Lesson 8: Introduction to Derivatives*. If you answer any of the questions incorrectly, you should return to the corresponding text and read that section again.



Version -2.0

PROGRESS CHECK 7

Directions: Select the one **best** answer for each question below. Compare your answers with the Answer Key on the following page.

Question 1	: Theoretically, the Treasury's position in the bank could be:
	_ a) an external sector that takes and places funds.
	_ b) the only sector with dealing desks.
	_c) an internal sector that has no contact with the market.
	d) superior to other departments.
Question 2	: The Treasury Department's position in the bank's hierarchy is:
	_ a) above the Corporate, Consumer and Financial Control Departments.
	_ b) below the other departments.
	_c) part of the other departments.
	d) equal to the other departments.
Question 3	: Who sets the rate if the corporate manager wants to make a deal to attract a new customer?
	_ a) Corporate manager
	_b) Consumer manager
	_c) General manager
	d) Treasurer



ANSWER KEY

- **Question 1:** Theoretically, the Treasury's position in the bank could be:
 - c) an internal sector that has no contact with the market.
- **Question 2:** The Treasury Department's position in the bank's hierarchy is:
 - d) equal to the other departments.
- **Question 3:** Who sets the rate if the corporate manager wants to make a deal to attract a new customer?
 - a) Corporate manager



PROGRESS CHECK 7

(Continued)

Question 4:	Select the tools the Treasury uses to achieve its objectives.
	a) Pool rate, ALCO meetings, and financial variables
	b) ALCO meetings, financial variables, and direct dealing
	c) Liquidity, direct dealing, and financial variables
	d) Pool rate, ALCO meetings, and direct dealing
Question 5:	The objective of the pool rate system is to:
	a) dictate rates.
	b) pool funds.
	c) borrow and lend funds.
	d) influence rate setting.
Question 6:	The pool rate should be set:
	a) at the bank's quoted rate.
	b) at the rate available in the market.
	c) to guarantee a profit.
	d) to compete with the other sectors.
Question 7:	The Treasury passes funds along at the prevailing rate to:
	a) cover the opportunity cost.
	b) maintain friendly relations with other sectors.
	c) set rates for other sectors.
	d) increase the amount of prevailing funds.



ANSWER KEY

- **Question 4:** Select the tools the Treasury uses to achieve its objectives.
 - d) Pool rate, ALCO meetings, and direct dealing
- **Question 5:** The objective of the pool rate system is to:
 - d) influence rate setting.
- **Question 6:** The pool rate should be set:
 - b) at the rate available in the market.
- **Question 7:** The Treasury passes funds along at the prevailing rate to:
 - a) cover the opportunity cost.



PROGRESS CHECK 7

(Continued)

Question 8:	The transfer pool rate has to be marginal, which means it must be:
	a) profitable.
	b) updated daily to market condition.
	c) averaged.
	d) the same as the original cost of funds.
Question 9:	To manage gapping, the Treasurer:
	a) sets the same pool rate for one-month and three-month funds.
	b) pools the rates for all tenors.
	c) sets a different pool rate for different tenors.
	d) sets the rates for all tenors at that day's prevailing spot rate.
Question 10:	The Treasurer wants liabilities and doesn't want assets in the one-month tenor. S/He should:
	a) set the one-month pool rate above market rate.
	b) set the one-month pool rate below market rate.
	c) set the one-month pool rate at the current spot rate.
	d) ask the consumer manager to raise more funds.
Ouestion 11:	It is necessary to have declars in the Treesury to
•	It is necessary to have dealers in the Treasury to:
-	a) deal with other departments of the bank.
	·
	a) deal with other departments of the bank.



ANSWER KEY

- **Question 8:** The transfer pool rate has to be marginal, which means it must be:
 - b) updated daily to market condition.
- **Question 9:** To manage gapping, the Treasurer:
 - c) sets a different pool rate for different tenors.
- **Question 10:** The Treasurer wants liabilities and doesn't want assets in the onemonth tenor. S/He should:
 - a) set the one-month pool rate above market rate.
- **Question 11:** It is necessary to have dealers in the Treasury to:
 - b) deal with the market to balance the needs of all departments.



PROGRESS CHECK 7

(Continued)

Question 12:	Ву	dealing directly with customers, the Treasury has become:
	a)	more important than the other departments in the bank.
	b)	a department specializing in customer relations.
	c)	a department that is internal to the bank.
	d)	a department that makes a profit.

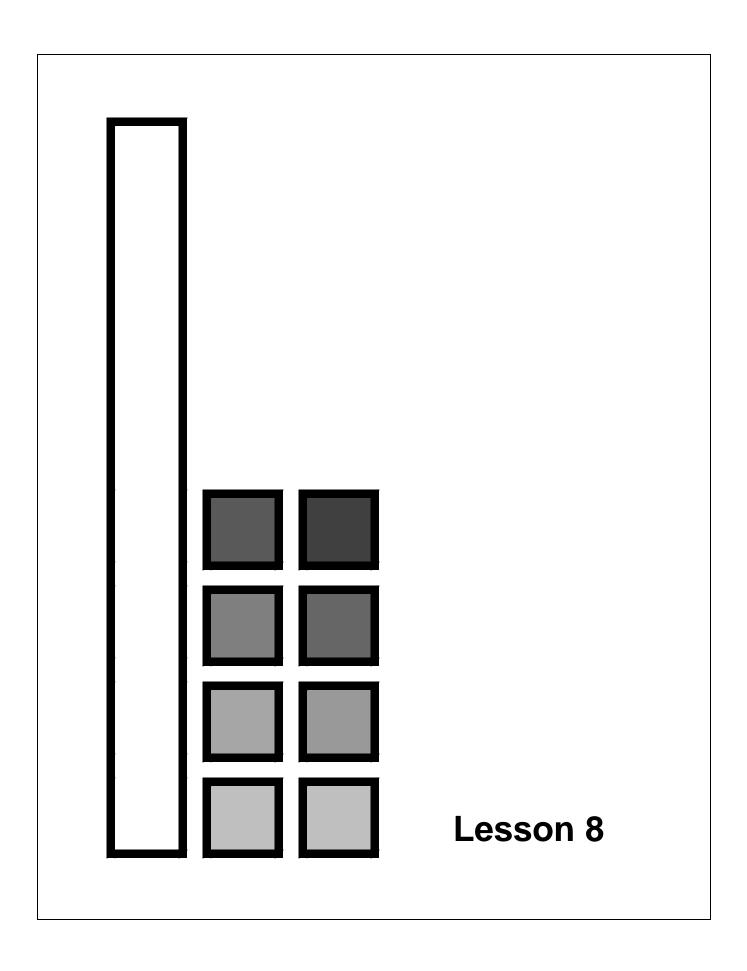


ANSWER KEY

Question 12: By dealing directly with customers, the Treasury has become:

d) a department that makes a profit.





LESSON 8: INTRODUCTION TO DERIVATIVES

INTRODUCTION

Thus far in this unit, we have referred to assets and liabilities (such as deposits and loans) and to exchange (currency) positions. In this lesson, we introduce the derivative products which are crucial to the success of the Treasury.

Derivative products are commonly used both as *hedging* instruments and as *speculative* instruments. They offer the customer an opportunity to limit loss potential and the opportunity to capture possible profits. We will briefly discuss the three basic forms of derivative products: *forwards*, *swaps*, *and options*.

In the summary of this lesson on pages 8-14—20, you will find a chart of all of the products discussed in this lesson, and a brief description of the function and benefits of each one. It may be helpful to refer to this chart as you learn about the different products, to review it before proceding to the progress check at the end of the unit, and to use it as a reference in the future.

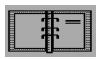


OBJECTIVES

When you complete this lesson, you will be able to:

- Distinguish between derivative and nonderivative forward products
- Distinguish between the three basic forms of hedging and speculative products
- Identify the foreign exchange and interest rate applications of derivative products





DERIVATIVE PRODUCTS

During the past three decades, the level of sophistication for issuers and investors has increased. These market participants have learned to identify and quantify different types of risk inherent in their transactions, which has spurred the development of many instruments designed to manage exposure to risk.

Cash flows derived from other markets **Derivative** instruments serve an important function by limiting the effect of volatility inherent in market transactions. They are called derivative products because the cash flows involved in the transactions, and the values of the products, are derived from other markets. A derivative instrument contains *rules* for settlement—but *does not set the amount* of the settlement.

The bank offers three basic forms of derivative products to its customers:

- Forwards
- Swaps
- Options

We will look at a currency example and an interest rate example for each type of derivative.

FORWARD TRANSACTIONS

A forward contract is an agreement to effect a financial transaction on a future date. Forward contracts may be used in the foreign currency markets and in the interest rate markets. Strictly speaking, a forward product is only called a derivative *if the payments* involved in the transaction *are derived from a different market*, and no fundamental transfer occurs.



Forward Currency Transaction

There are two types of forward currency transactions: (1) a forward foreign exchange (FX) contract and (2) a forward exchange agreement (FXA). As you will see, *only the FXA is a true derivative instrument*.

Let's look at an example to see how each type of contract may be used to satisfy a customer's FX needs.

Example

Suppose one of the bank's Swiss customers expects to receive USD 1,000,000 in one year. The customer expects the value of USD to fall and wants to have a guaranteed exchange rate for dollars against Swiss Francs (ISO code is CHF for Swiss Francs).

Forward foreign exchange (FX) contract

One solution the bank can offer is to agree today to buy USD 1,000,000 from the customer in one year and to pay CHF 1,500,000 to the customer at that time (USD 1 / CHF 1.50). This agreement is a forward foreign exchange (FX) contract, which is one of the most common forward contracts offered by banks. It is an agreement to exchange one currency for another currency at a fixed price on a specified future date.

Forward exchange agreement

Keeping that in mind, let's compare the forward FX contract with a **forward exchange agreement** (**FXA**), which is a less-utilized contract offered by banks that is definitely a derivative product. An FXA is an agreement to net the spot market value of a contract amount of one currency against a prespecified contract amount of another currency. The payment amount is derived from the difference between the actual spot rate and the contract rate.



To help the Swiss customer, the bank can offer a forward exchange agreement to net the spot market value of USD 1,000,000 in one year against the prespecified contract amount of CHF 1,500,000. Let's see how it works.

- If the spot rate is still USD 1 = CHF 1.50 at the end of one year, the customer will sell the USD 1,000,000 in the spot market for CHF 1,500,000 and there is nothing to pay to the bank.
- However, if the spot rate has fallen to USD 1 = CHF 1.40, our customer will receive only CHF 1,400,000 for the USD 1,000,000 in the spot market. In this case, the bank makes up the difference by paying the customer CHF 100,000.
- On the other hand, if the spot rate has increased to USD 1 = CHF 1.60, our customer will receive CHF 1,600,000 for the USD 1,000,000 in the spot market. In this case, the customer will pay the CHF 100,000 excess to the bank.



Recap:	FXA
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In one year: Customer will have Customer needs:	USD 1,000,000 CHF 1,500,000
Spot market: USD 1,000,000 equals Bank / customer pays Customer nets	CHF 1,500,000 -0- CHF 1,500,000
Spot market: USD 1,000,000 equals Bank pays customer Customer nets	CHF 1,400,000 <u>CHF 100,000</u> CHF 1,500,000
Spot market: USD 1,000,000 equals Customer pays bank Customer nets	CHF 1,600,000 <u>CHF 100,000</u> CHF1,500,000

Notice that with an FXA, only the difference between the contract amount and the spot market price in one year is paid by the bank or the customer. The customer has to sell the USD 1,000,000 in the spot market in one year, independent of the level of the spot exchange rate.

True derivative forward contract

The FXA is definitely a derivative contract, since the payment made at the end is not known initially. It will be derived at the time of payment by referring to the rate in the foreign exchange spot market. Even though forward contracts of any type often are called derivatives, you can now see the difference between the more common forward contract and a true derivative forward contract.

Foreign exchange contracts are discussed in more detail in the FOREIGN EXCHANGE workbook.



Forward Interest Rate Transaction

Forward rate agreement (FRA)

Forwards also may be used to help the customer who needs a loan and is concerned about the interest cost. In this case, a **forward rate agreement (FRA)** may be appropriate. An FRA is an agreement to net the market-defined amount of interest on a given principal amount against a prespecified contract amount of interest.

The product is similar to the FXA except that it derives the payment by comparing a contract rate to the prevailing market *interest* rate at maturity of the contract. Another difference between an FXA and FRA arises from the fact that interest rates on long term loans are computed at the beginning of the year but paid at the end of the year. Settlement of the FRA contract may be either at the end of the period or in the beginning. If up-front settlement is elected, the payment will be discounted to present value.

Let's look at an example of an FRA contract with end-of-year settlement.

Example

Suppose one of the bank's US customers is paying interest annually (e.g. on March 1 of each year) on a principal amount of USD 1,000,000. The agreed interest rate is 2% above LIBOR (London Interbank Offer Rate). On March 1 of each year, the bank adds two percentage points to the LIBOR quoted for one year USD loans. The borrower then knows how much interest will be owed at the end of the year.

The customer is concerned that the rate may move upward and increase interest on the loan to unacceptable levels. To hedge the rate on the loan, the customer uses an FRA contract at a rate of 10%. The result is as follows:



- If LIBOR at contract date is 10%, the customer will pay the Bank 12% interest on the loan (USD 120,000). In this case, there is nothing to pay on the FRA contract.
- If LIBOR at contract date rises to 11.5%, interest payable will rise by USD 15,000. The customer pays 13.5% interest on the loan (USD 135,000) and the bank pays the customer USD 15,000 on the FRA contract. The net payment for the customer equals USD 120,000.
- If LIBOR at contract date falls to 8%, interest payable will fall by USD 20,000. The customer pays the bank USD 100,000 interest plus USD 20,000 on the FRA contract. The net payment for the customer equals USD 120,000.

The net amount the customer will pay on the loan and FRA is USD 120,000, whether rates move up, down, or not at all.

The FRA is definitely a derivative contract. The payment is derived from the money-market interest rate quotes at maturity. Initially, the parties do not know which one will make the payment at maturity or the amount of the payment to be made.

Futures Transactions

Standardized forward contracts

A more public market for forward transactions exists as well. Financial futures were created to decrease the credit risk involved with forward transactions as well as address various accounting and tax issues. These **futures contracts** are essentially standardized forward contracts which require nearly continuous settlement of losses and gains (called "variation margin payments") and collateralization against potential payments (called "initial margin").



The Eurodollar futures contract is similar to the FRA mentioned previously. The USD/CHF futures contract is very similar to a forward foreign exchange contract (with actual settlement transfers in both currencies), but has the net-payment flexibility of the FXA as well. This is because futures contracts can be offset prior to maturity and are then fully removed as an obligation.

Interest rate forward transactions and futures transactions are discussed in more detail in the INTEREST RATE workbook and in the FUTURES workbook.

Before we continue with our discussion of swaps and options, please check your understanding of forward transactions by answering the questions in Progress Check 8.1.



PROGRESS CHECK 8.1

Directions: Select the one **best** answer for each question below, unless otherwise indicated. Compare your answers with the Answer Key on the following page.

Question 1:	on 1: Sophisticated issuers and investors are attracted to derivative pr because they:		
	_a) derive value from other markets.		
	_b) limit the effect of market volatility.		
	_c) guarantee the amount of the settlement.		
	_d) eliminate the risk inherent in market transactions.		
Question 2	A forward foreign exchange contract is not a derivative instrument because:		
Question 2 :			
Question 2:	because: _ a) the settlement is determined by a market other than the foreign		
Question 2:	because: _a) the settlement is determined by a market other than the foreign exchange market.		



ANSWER KEY

- **Question 1:** Sophisticated issuers and investors are attracted to derivative products because they:
 - b) limit the effect of market volatility.
- **Question 2:** A forward foreign exchange contract is not a derivative instrument because:
 - d) the settlement price is fixed in the contract.



PROGRESS CHECK 8.1

(Continued)

Question 3:	Suppose a customer in London expects to receive USD 1,000,000 in one year. The customer expects the value of USD to fall and wants to lock in an exchange rate. The Bank offers the customer a forward exchange agreement. As expected, in one year the value of USD is down. In this case, the customer will:			
	a) exchange USD for GBP at the predetermined settlement rate.			
	b) exchange USD for GBP in the spot market and pay the difference to the bank.			
	c) exchange USD for GBP in the spot market and receive the difference from the Bank.			
	d) settle with the bank the difference between the spot rate and the forward rate.			
Question 4:	One of the Bank's US loan customers is paying annual interest of LIBOR plus 1.5%. The customer wants protection in case LIBOR moves upward and increases interest on the loan to an unacceptable amount. The Bank offers an FRA contract to the customer at a rate of 8%. LIBOR moves upward as expected and at contract date, LIBOR is 10%. To settle the contract, the customer:			
	a) pays 11.5% interest to the Bank and receives back the equivalent of 2% to settle the FRA contract.			
	b) pays 9.5% interest to the Bank.			
	c) pays 11.5% interest to the Bank.			
	d) pays 10% interest to the Bank plus an additional 1.5% to settle the FRA contract.			



ANSWER KEY

- Question 3: Suppose a customer in London expects to receive USD 1,000,000 in one year. The customer expects the value of USD to fall and wants to lock in an exchange rate. The Bank offers the customer a forward exchange agreement. As expected, in one year the value of USD is down. In this case, the customer will:
 - c) exchange USD for GBP in the spot market and receive the difference from the Bank.
- Question 4: One of the Bank's US loan customers is paying annual interest of LIBOR plus 1.5%. The customer wants protection in case LIBOR moves upward and increases interest on the loan to an unacceptable amount. The Bank offers an FRA contract to the customer at a rate of 8%. LIBOR moves upward as expected and at contract date, LIBOR is 10%. To settle the FRAcontract, the customer:
 - a) pays 11.5% interest to the Bank and receives back the equivalent of 2%.



SWAPS

Multiple settlement dates The forward contracts mentioned previously involve only one settlement date when payments are determined. Some derivative products involve *multiple settlement dates* to meet the needs of customers. These multiple-period contracts are called swaps.

Interest-Rate Swap Transaction

Example

Suppose the customer in the FRA example is worried not only about the next rate reset on the USD 1,000,000 loan, but is worried about all resets for the next five years. In this situation, the bank can offer five separate FRAs, each one settled on one of the loan's rate-setting dates. The customer signs five sets of contracts, and it is likely that the individual FRA contracts will each have a different guaranteed rate. As a convenience, it is better to offer the customer one contract with one fixed rate to be settled five times.

This contract is called an **interest rate swap** (**IRS**) — in some financial institutions it may be referred to as an "interest rate conversion agreement" or IRCA. The swap agreement lists the "notional" principal amount, the settlement dates, and the prespecified interest rate to be used to settle against the market interest rate. A difference between the FRA contracts and the IRS contracts is that *most FRA payments are discounted and paid up front*, while *IRS payments are made at the end of the period*.

To help the customer, the bank can agree to a fixed swap rate of 10.50% on a notional principal amount of USD 1,000,000 with rate settings on March 1 of each of the next five years. If one-year LIBOR is above 10.50% on any rate setting date, the bank will pay the additional interest to the customer. If one-year LIBOR is below 10.50% on any rate setting date, the customer will make a corresponding payment to the bank.

Again, the opposite side (the bank's side in this example) of the IRS is useful for investors with floating-rate assets.



Currency Swap Transaction

Sometimes bank customers borrow funds and establish a liability in one currency, but wish to transform the liability into another currency.

Example

For example, the US customer may have a liability to pay CHF 1,500,000 principal plus interest. Though the full principal payment is not due for five years, the interest payments are due each year at a fixed rate of 9%. If the customer wants to have a fixed-rate USD liability, the CHF liability will represent a currency risk and interest rate risk as well.

Again, the Treasury can help, this time with a **currency swap**. (In some institutions, it may be called a "cross-currency interest rate conversion agreement" or CCIRCA.) This product is similar to an IRS, except that two different currencies are involved. Instead of making net payments, the principal and interest in both currencies are usually exchanged.

The bank can offer to pay to the customer a fixed annual interest rate on a principal amount of CHF 1,500,000 *plus* the CHF 1,500,000 at maturity. In exchange for these payments, the bank receives an amount of USD interest each year plus USD 1,000,000 at maturity. The USD interest may be either fixed or floating (for example, LIBOR). In the case of the US customer, the bank offers a fixed rate because the customer wants a fixed-rate liability.

If the customer initiates the foreign-currency borrowing but actually wants USD, the bank also offers to receive from the customer the CHF principal and pays an equivalent amount of USD at current spot exchange rates. The transaction is called a currency swap, whether or not this up front payment is made.



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The standard currency swap is more like a forward FX transaction than it is like an FXA or IRS. In a strict sense, the CS discussed previously is not a derivative transaction, even though it is almost always included in lists of derivative transactions. In order to create a currency swap with the lower credit risk inherent in the truly "derivative" product line, banks have begun to net payments in the same manner as an FXA. Though this is increasingly common in transactions between large banks and a few large corporate users of swaps, it is still rare for smaller banks and smaller customers.

Interest rate swaps and currency swaps are discussed in more detail in the SWAPS workbook.

OPTIONS

All products introduced thus far have the possibility of payments from either party (and to either party) at future settlement dates. The final derivative product line discussed here offers *one party the right to receive the derivatives payments without the obligation to pay if conditions change the other way.* In exchange for this significant benefit, the party with the right pays an up front payment to the other party.

Currency Option Transaction

Example: Nonderivative currency option Suppose the Swiss customer with the USD 1,000,000 receivable wants to protect against a decline in the USD value. However, the customer believes the USD may increase in value by the time of the payment and does not want to fix the exchange rate. In this case, the customer may want a **currency option**.



A currency option *gives the customer the right, but not the obligation*, to sell the USD 1,000,000 to the bank for CHF 1,500,000. If USD 1,000,000 is worth CHF 1,400,000 at the time of payment, the customer will happily *exercise the option* by delivering the USD to the bank and receiving CHF 1,500,000 from the bank. If USD 1,000,000 is worth CHF 1,700,000 at the time of payment, the customer will choose to sell the USD in the spot market and receive CHF 1,700,000 — more than the customer would receive by exercising the option.

In order to offer such a nice contract, the bank must charge the customer an up front fee called a *premium*. This is similar to most insurance policies (i.e. property insurance, auto insurance, etc.) because the amount of "coverage" or "deductible" can be modified with corresponding changes to the "premium" charged for the contract.

In our example, the customer may prefer to lower the premium charged for the currency option by agreeing to a lower exchange rate of CHF 1.45 / USD. In this case, the option gives the customer the right, but not the obligation, to deliver the USD 1,000,000 and receive CHF 1,450,000. The contract exchange rate is called the *strike price* of the option. The better the strike price for the buyer of the option, the higher the premium charged by the seller of the option.

Generally, customers consider currency option premiums to be prohibitively expensive for hedging currency risk on a regular basis. They only use options to hedge conditional currency risks or in special situations.

FXA option

Currency options may be written to resemble a derivative by changing the agreement terms to those which are closer to a forward exchange agreement (FXA) structure than a currency forward contract structure. In this case, the customer will have the option to receive the FXA payment without the obligation to pay the FXA payment if the exchange rate is above the strike price.



Example

If the FXA strike price is CHF 1.50 / USD (with all other terms described previously), and the settlement rate at maturity is CHF 1.40 / USD, the customer receives the CHF 100,000 payment from the bank. If the settlement rate is CHF 1.70 / USD at maturity, the customer pays nothing and the option simply expires. Of course, as with the FXA itself, the customer will sell the USD 1,000,000 in the spot market at the market rate of CHF 1.70 / USD. The only payment the customer makes in this situation is the up front premium for the option.

The FXA option is a true derivative since the payment made at maturity is derived from other market rates. The currency option is said to be a derivative because its "value" is derived from other market rates. In market practice, almost all options are considered derivatives.

Interest-Rate Option Transaction

Interest rate cap (ceiling)

Option contracts may also help the US borrower mentioned previously. If the borrower wants to remove the risk of an increase in LIBOR while retaining the benefit from a decrease in LIBOR, an **interest rate cap** (also known as a "ceiling") may be the right product.

An interest rate cap is an option on a forward rate agreement (or interest rate swap) which permits the borrower to receive the FRA payment (or swap payments, if multiple periods are involved) without the risk of paying the FRA payment (or swaps payments) if rates are below the contract rate. In exchange for this wonderful contract, the borrower pays an up-front premium to the bank.

Example

If the cap rate is 10%, then the borrower will receive payments from the bank whenever annual LIBOR is above 10% on a cap rate-setting date (as in an FRA or IRS). Whenever LIBOR is below 10% on a cap rate-setting date, the borrower will pay nothing to the bank. The lower cost of the floating-rate loan is a benefit which the customer does not give to the bank.



Interest rate options may also be used by investors. Just as an FRA or IRS can be used by an investor to hedge against a drop in interest rates, an **interest rate floor** can be used by an investor to remove the risk of a drop in rates without foregoing the potential benefit of a rate rise. Caps and floors can be for a single period (like an FRA) or for multiple periods (like a swap).

Premiums for interest-rate options are considered much more affordable than premiums for currency options. Thus, caps are used more often than currency options to hedge risk.

Caps and floors are discussed in greater detail in the OPTIONS workbook.

SUMMARY

In this lesson, you have seen examples of interest rate contracts and foreign exchange contracts that are considered to be derivative products. They are called derivative products because they derive their value and their cash flows from other markets.

In the strictest sense of the term, a *forward FX contract* is not considered to be a derivative product because the cash flows are not based on other markets. A forward FX transaction simply involves the exchange of two currencies on a predetermined date at a set price. On the other hand, a *forward exchange agreement* (FXA) is definitely a derivative product because the cash flow is a net of the spot market value on the maturity date of the contract amount of one currency and the prespecified contract amount of another currency.

A forward rate agreement (FRA) is similar to an FXA except that it derives the payment by comparing a contract rate to the prevailing market interest rate at maturity of the contract.

An *interest rate swap* also resembles an FRA. It is appropriate for customers who need multiple forward rate agreements and prefer to have one contract with one fixed rate to be settled multiple times.



A *currency swap* is designed for customers that borrow funds and establish liability in one currency and want to transform the liability into another currency.

Options offer the opportunity to receive the derivative payments without the obligation to pay if conditions change adversely. The price for this benefit is the *premium*. *Currency options* are true derivative products when the terms of the agreement call for a net payment if the option is exercised. This is referred to as an *FXA option*.

An *interest rate cap* is an option on an FRA which gives the customer the right to receive the FRA payment without the risk of paying if market rates are below the contract rate. An *interest rate floor* is the opposite of an interest rate cap and is used by investors to hedge against a drop in interest rates, while retaining the potential benefit of a rise in rates.

The chart on the following pages is designed to help you to distinguish between these products and their features.



INTRODUCTION TO DERIVATIVES 8-20

Product Definition Derivative Y/N	Payment Payment derived from	Benefits to Customer / Bank
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FORWARD CURRENCY TRANSACTIONS

Forward Foreign Exchange Contract (FX)	Agreement to exchange one currency for another at a fixed price on a specified future date.	N		Both parties make and receive payment of the total amount of currency on the settlement date.	 Customer receives full amount of currency s/he needs on settlement date, and does not have to obtain currency through an exchange which may be impossible when the currency is needed. Forward FX is a very simple contract.
Forward Exchange Agreement (FXA)	Agreement to net the spot market value of a contract amount of one currency against a prespecified contract amount of another currency. Payment is derived from the difference between the actual spot rate and the contract rate.	Y	Spot FX market	Customer or bank pays difference between contract rate and spot rate of exchange on the settlement date.	 FXAs have a low credit risk because they do not involve transfer of capital. Customers can hedge large amounts, even if they have a small credit line. Protects against unfavorable exchange rate movement.
Forward Rate Agreement (FRA)	Agreement to net the market-defined amount of interest on a given principal amount against a prespecified contract amount of interest.	Y	Interest rate market	Customer or bank pays difference between contract rate and prevailing market interest rate on the settlement date. Most FRAs are discounted and paid up front.	 FRAs have a low credit risk because they do not involve transfer of capital. Customers can hedge large amounts, even if they have a small credit line. Protects against unfavorable interest rate movements.



INTRODUCTION TO DERIVATIVES 8-21

Product	Definition	Derivative Y/N	Payment derived from	Payment	Benefits to Customer / Bank
FUTURES TRAN		Y	Market	Initial margin payment	Available to participants with any
rutures Contract	Agreement to buy or sell, or affect the financial equivalent of buying or selling, a specified quantity of an underlying asset on a future date. A futures contract contains all the information in a forward contract, plus an	Y	on which underlying asset is based	Initial margin payment, daily settlement of gains or losses (or initial margin payment is forfeited). If not offset in advance, delivery of underlying security on settlement date.	 Available to participants with any amount of credit Reduces or eliminates counterparty risk Inexpensive Standardized contracts Market's large volume makes it possible to hedge large positions quickly



obligation to make an initial margin payment and daily settlement of gains and losses, and it is established through an organized exchange.

Product Definition Deriv	ive Payment Payment derived from	Benefits to Customer / Bank
--------------------------	----------------------------------	-----------------------------

SWAP TRANSACTIONS

Interest Rate Swap (IRS) Or Interest Rate Conversion Agreement (IRCA)	A contract with one fixed rate that is settled more than once over a period of time. The agreement lists the "notional" principal amount, the settlement dates, and the prespecified interest rate to be used for settlement.	Y	Interest rate market	Customer or bank pays difference between contract interest rate and prevailing market interest rate on multiple settlement dates.	 Convenience of one contract with one fixed rate Protects customer from multiple rate resets
Currency Swap or Cross-Currency Interest Rate Conversion Agreement (CCIRCA)	Similar to an IRS, except that two different currencies are involved.	Yes, if net payments are made or variable rates are used to determine payments. No, if principal and fixed amounts of interest are exchanged.	Either interest or exchange rates on specified contract	Although net payments are generally exchanged in the interbank market, the principal and the interest in both currencies are usually exchanged for customer contracts.	Protects against both currency movements <u>and</u> interest rate movements



INTRODUCTION TO DERIVATIVES 8-23

Product	Definition	Derivative Y/N	Payment derived from	Payment	Benefits to Customer / Bank
OPTION TRANS	ACTIONS				
Currency Option	One party makes an up-front payment to the other party for the right to receive the currency payment if the rate moves favorably, without the obligation to pay if conditions change the other way.	Y	If exercised, payment is defined by contract	Customer pays an up-front fee called a premium, and exchanges the full amount of currency at the settlement date if s/he chooses to exercise the option.	Gives one party the right to receive the benefits or avoid losses of the underlying contract
FXA Option	Gives buyer the option to receive FXA payment without the obligation to pay the FXA payment.	Y	If exercised, spot FX market	Customer pays <u>premium</u> up front and, if option is exercised, customer or bank pays difference between spot <u>rate of exchange</u> and contract rate.	Gives one party the right to receive the benefits or avoid the losses of underlying contract
Interest Rate Option	Gives buyer the option to receive without the obligation to pay.	Y	If exercised, interest rate market	Customer pays <u>premium</u> up front and, if option is exercised, customer or bank pays difference between contract interest rate and prevailing market interest rate on the settlement date.	Gives one party the right to receive the benefits or avoid the losses of underlying contract



Product	Definition	Derivative Y/N	Payment derived from	Payment	Benefits to Customer / Bank
OPTION TRANSAC	TIONS (Continued)				
Interest Rate Cap or Ceiling	Option on an FRA or interest rate swap which permits the buyer to receive payment if reference rate rises above the contract rate, without risk of paying if the reference rate goes below the contract rate.	Y	Interest rate market	Customer pays premium to bank. Bank pays buyer, at each reset date, the difference between a reference rate (usually 3-6 mo. LIBOR) and an agreed exercise rate (cap) when the reference rate exceeds the exercise rate.	Protects borrowers if the interest rate on a floating-rate loan rises above a specified level
Interest Rate Floor	Contract which permits the buyer to receive payment if the reference rate drops below the contract rate, without risk of paying if the contract strike rate exceeds the reference rate.	Y	Interest rate market	Buyer pays <u>premium</u> up front. Bank pays buyer the difference between a reference rate and the agreed strike rate when the reference rate drops below the strike rate.	Removes an investor's risk of a drop in rates without eliminating the potential benefit of a rate rise



You have completed *Lesson 8: Introduction to Derivatives*. Please complete Progress Check 8.2 which follows before continuing with the final lesson in Unit 1, *Risks and Controls*. If you answer any of the questions incorrectly, we suggest that you return to the corresponding text and read that section again.



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PROGRESS CHECK 8.2

Directions: Select the one **best** answer for each question below, unless otherwise indicated. Compare your answers with the Answer Key on the following page.

Question 1: Match the type o	f produ	ect to its definition.
Forward	a)	A contract in which one party pays a premium for the right to receive a payment if interest or exchange rates move favorably, without the obligation to pay if conditions go the other way.
Swap	b)	Agreement to net the market defined value of an amount of currency or interest against a prespecified amount of currency or interest on a specified future date.
Option	c)	A contract with one fixed interest and/ or exchange rate that is settled more than once over a period of time.



ANSWER KEY

Question 1: Match the type	of product to its definition.
<u>b</u> Forward	a) A contract in which one party pays a premium for the right to receive a payment if interest or exchange rates move favorably, without the obligation to pay if conditions go the other way.
<u> </u>	b) Agreement to net the market defined value of an amount of currency or interest against a prespecified amount of currency or interest on a specified future date.
<u>a</u> Option	c) A contract with one fixed interest and/ or exchange rate that is settled more

than once over a period of time.



PROGRESS CHECK 8.2

(Continued)

Questi	on 2:	If a small customer has a floating-rate investment with a 3-year maturity, and is worried about a drop in short-term interest rates, which of the following is the best product to suggest?
-		a) Forward-rate agreement
-		b) Forward foreign exchange
		c) Interest rate swap
		d) Currency swap
		e) Currency option
		f) Cap
-		g) Floor
		h) Eurodollar future
-		i) Currency future
Questi	on 3:	If a small customer believes that short-term rates will fall sharply, but has a floating-rate loan and can no longer afford the risk of rates rising (which is possible), which of the following is the best product to suggest?
-		a) Forward-rate agreement
		b) Forward foreign exchange
		c) Interest rate swap
		d) Currency swap
		e) Currency option
		f) Cap
		g) Floor
-		h) Eurodollar future
		i) Currency future



ANSWER KEY

- **Question 2:** If a small customer has a floating-rate investment with a 3-year maturity, and is worried about a drop in short-term interest rates, which of the following is the best product to suggest?
 - c) Interest rate swap
- **Question 3:** If a small customer believes that short-term rates will fall sharply, but has a floating-rate loan and can no longer afford the risk of rates rising (which is possible), which of the following is the best product to suggest?
 - f) Cap



PROGRESS CHECK 8.2

(Continued)

Question 4:	If a customer owns a very profitable (dividend paying) subsidiary in a foreign country and is beginning to worry about the currency falling in value, which of the following is the best product to hedge the currency risk for a long time?
	a) Forward-rate agreement
	b) Forward foreign exchange
	c) Interest rate swap
	d) Currency swap
	e) Currency option
	f) Cap
	g) Floor
	h) Currency future
Question 5:	If a small customer has a floating-rate loan and is concerned about a short-term rise in interest rates which could increase borrowing costs for the next period, which of the following is the best product to suggest?
	a) Forward-rate agreement
	b) Forward foreign exchange
	c) Interest rate swap
	d) Currency swap
	e) Currency option
	f) Cap
	g) Floor
	h) Currency future



ANSWER KEY

- **Question 4:** If a customer owns a very profitable (dividend paying) subsidiary in a foreign country and is beginning to worry about the currency falling in value, which of the following is the best product to hedge the currency risk for a long time?
 - d) Currency swap
- **Question 5:** If a small customer has a floating-rate loan and is concerned about a short-term rise in interest rates which could increase borrowing costs for the next period, which of the following is the best product to suggest?
 - a) Forward-rate agreement



PROGRESS CHECK 8

(Continued)

Question 6:	If a small customer has an invoice which needs to be paid in 30 days with foreign currency, and wishes to remove currency risk, which of the following is the best product to suggest?
	a) Forward-rate agreement
	b) Forward foreign exchange
	_c) Interest rate swap
	_d) Currency swap
	e) Currency option
	_f) Cap
	g) Floor
	h) Currency future

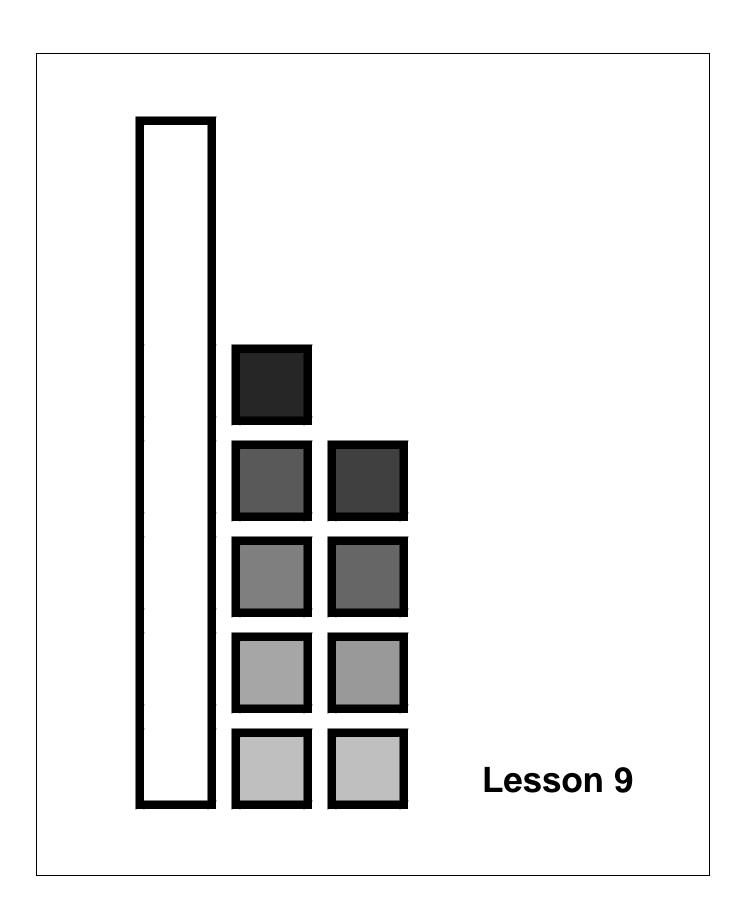


ANSWER KEY

Question 6: If a small customer has an invoice which needs to be paid in 30 days with foreign currency, and wishes to remove currency risk, which of the following is the best product to suggest?

b) Forward foreign exchange





LESSON 9: RISKS AND CONTROLS

INTRODUCTION

In previous lessons, we mentioned the risks inherent in money market and foreign exchange transactions. In this lesson, we focus on risk in terms of Treasury operations, in general, and the controls used to minimize risk.



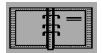
OBJECTIVES

When you complete this lesson, you will be able to:

- Recognize the type of risk resulting from money market and foreign exchange (FX) positions
- Identify the limit used to control liquidity risk and the report that monitors risk exposure
- Identify price risk associated with money market and FX positions
- Recognize the methodology for identifying settlement and pre-settlement counterparty risk
- Define cross-border risk



9-2 RISKS AND CONTROLS



TYPES OF RISKS

There are three major types of risks involved in money market and exchange market operations. They are:

- Liquidity risk
- Price risk
- Counterparty risk

For transactions that involve the flow of funds between countries, there is also cross-border risk.

LIQUIDITY RISK

Liquidity risk is the most important issue that the Treasury has to face. It arises when a cash inflow has not been prearranged to fund an obligation.

Money Market

Negative-gap position

In the money market, liquidity risk occurs when we place funds for a longer period than funds are taken; that is, we have a negative-gap position. If we lend funds for six months while borrowing for only one month, there is a risk that we will be unable to replace the funds at the end of the month.



Inability to liquidate a position

A gapped position is one source of money market liquidity risk. However, even if maturities are matched, there is always the risk that we won't be able to liquidate an asset because the borrower is unable to pay. It is also possible that the bank's credit position or creditworthiness will prevent us from funding assets with liabilities. Finally, the Central Bank can tighten conditions in the money market which will affect our ability to get funds.

Foreign Exchange Market

Liquidity risk in the foreign exchange market arises from an inability to obtain needed funds in a particular currency. This occurs more frequently in controlled currency markets, like the Brazilian market.

Controlling Liquidity Risk

MCO limit

The liquidity in money market and exchange positions is controlled by setting a limit on the maximum cumulative cash outflow during a given period. It is important to observe the **MCO limit** and to use consistent reporting criteria in order to compare the data from month to month.

MCO Report

The information needed to monitor and enforce these limits is gathered in a cumulative cash flow report – the **Maximum Cumulative Outflow (MCO) Report**. We use the report to determine if our exposure to risk is increasing or decreasing. We also use it as a tool for short-term cash management; the report tells the Treasurer how much cash must be available to meet obligations. The **MCO Report** is divided by maturities and shows the **net cash flow** for each tenor and the cumulative cash flow for all tenors.



9-4 RISKS AND CONTROLS

Example

Let's look at an example. In Figure 9-1, we show an MCO report with a six-month negative gap. The asset funded on Day One will be liquidated in six months. There is a 100-unit negative cash flow which represents a six-month exposure to liquidity risk. (For the example, we use "units" to represent a specific currency.)

	Assets (+ Inflow)	Liabilities (- Outflow)	Net Cash Flow	Cumulative Cash Flow
´) day	_	(100 units)	(100)	(100)
2) 1 week	_	_	_	(100)
3) 1 month	_	_	_	(100)
4) 2 months	_	_	_	(100)
5) 3 months	_	_	_	(100)
6) 6 months	100 un ts		+100	0

Figure 9-1: MCO Report – Six-month negative gap

In the next example (Figure 9-2), the MCO limit is 200 units, which means that the cumulative cash flow cannot exceed that amount.

	Assets (+ Inflow)	Liabilities (- Outflow)	Net Cash Flow	Cumulative Cash Flow
1) day	50	(200)	(150)	(150)
2) 1 we ek	100	(150)	(50)	(200)*
3) 1 month	300	(250)	+50	(150)
4) 2 months	400	(200)	+200	+50
5) 3 months	150	(50)	+100	+150
6) 6 months	_	(150)	(150)	0
	1000	(1000)	* (200)	= MCO Limit

Figure 9-2: MCO (Maximum Cumulative Outflow)



The cumulative cash flow report is valid as an operating tool only if all assets and liabilities are paid on the maturity date. Since many assets and liabilities are rolled over or renewed, the report serves as a statement of contractual obligations and rights as of the previous day's closing.

The MCO Report is required periodically in local branches and by Head Office for every currency in which the branch conducts significant business. As we said before, liquidity is the most important issue for the Treasury. The MCO limit must be observed, or a new limit must be requested from Head Office. If the limit is exceeded on any day, the Treasurer must report it to both Head Office and the local audit division on the same day.

PRICE RISK

Mismatched cash flow position

One way to profit from the financial markets is by anticipating favorable changes in market rates and creating mismatched cash flow positions. In exchange for the opportunity to make a profit from desirable rate fluctuations, we must be exposed to a possible loss from undesirable rate fluctuations.

Money Market

In money market transactions, price risk arises when the maturities of investments do not match the maturities of borrowings. Let's look at our negative gap situation again. When we lend funds for six months while borrowing for one month, the interest rate on the six-month loan is locked in from the beginning. The rate for borrowing changes. At the end of the first month, we have to borrow again at the prevailing rate — which we hope is less than the rate for the first month. If we get the money, but at a higher rate, we still have liquidity — but we have lost some of our profitability.



9-6 RISKS AND CONTROLS

Cash outflows

Negative cash flows represent an exposure to rate increase risk. This risk is controlled with a maximum cumulative outflow limit and monitored with a cash flow report.

Cash inflows

Cash inflows are subject to risk if rates drop. When we have a net cash inflow, we have to square our cash position by placing those funds. If our return on the funds is less than the cost of obtaining the funds, we experience a loss of profits.

Foreign Exchange

In foreign exchange transactions, **rate risk** arises from:

- Net exchange positions
- FX swap positions or mismatched maturities

Net Exchange Position

We have a net exchange position whenever our assets and forward purchases in a particular currency do not exactly match our liabilities and forward sales in the same currency. If we maintain a net overbought position and there is a devaluation of the currency, we incur a loss. If a revaluation occurs, we have a profit. The opposite happens if we hold a net oversold position in a currency.

Net position limits Management controls this risk by setting net position limits for each currency and major trading center based on budgeted annual trading profits.



There are two types of position limits:

1) Overnight limits – A trader cannot react to changes in market prices that occur beyond the business hours in that particular country. To protect against these changes, banks set limits that cannot be exceeded at the end of the trading day. Overnight limits are controlled through the accounting system.

2) **Daylight limits** – During the day, traders also have a limit for price risk positions, but they may be larger than overnight position limits. Daylight limits are usually a multiple of overnight limits. Since trading takes place at such a frantic pace, limits during trading hours are difficult to control. However, some measures are taken to make sure these limits are observed. They include spot audits, time stamps, and prenumbered deal slips.

FX Swaps

A present-value adjusted (PVA) FX swap exposes us to interest rate risk with no foreign exchange risk. A PVA FX swap involves the simultaneous purchase and sale of the same present value of a foreign currency for two different maturities. A PVA FX swap transaction does not affect a net exchange position in a proper present-value-based accounting system.

A standard FX swap involves the simultaneous purchase and sale of the same amount of a foreign currency for two different maturities. In traditional accrual accounting systems, it appeared that standard FX swaps did not affect a net exchange position. However, with the advent of mark-to-market (present value) accounting, it has become clear that the time value of money is an important concept whenever cash flows occur on different dates.



9-8 RISKS AND CONTROLS

Thus, standard FX swaps do have foreign exchange risk and, even if interest rates are constant, will generate profits or losses due to exchange-rate fluctuation. For now, let's just say that it is possible to lose money in foreign exchange deals even if we maintain an FX-square position. We discuss FX swaps in more detail in the FOREIGN EXCHANGE workbook.

COUNTERPARTY RISK

Liquidity and rate fluctuation risk are the direct responsibility of the Treasury. Counterparty risk is related to Treasury operations because the Treasury needs previous approval of credit risk officers and market risk officers to deal with customers. The Treasury is required to stay within approved limits for every specific counterparty so that any limit problem may be reverted back to the appropriate risk manager.

Money Market

Preapproved limits When placing money, we need an approved credit line for the counterparty. We control the risk in money market transactions by lending within the preapproved limits.

Foreign Exchange Market

Failure to deliver currency

Counterparty risk in foreign exchange operations is the chance that one party will not fulfill the agreed-upon obligation to exchange currencies. The nature of the risk depends on whether the other party defaults at, or before, the maturity date.

• On settlement date: There is a 100% risk that we will have paid our part of the deal and cannot stop the payment before the counterparty goes bankrupt and defaults. This is known as **settlement risk**.



Before settlement date: In this case, the counterparty will not honor the deal and we will not get paid. However, since we have already squared our net exchange position, we will have to replace this transaction with another transaction. We face the problem that exchange rates will have moved against us. This is known as pre-settlement risk.

Credit risk factor

Since we cannot determine exactly how much we will lose and we have to operate within approved credit limits, it is necessary to assign a **credit risk factor** (**CRF**) to the transaction. For example, if we establish a CRF of 7% for pre-settlement risk, and then we close a deal for USD 1,000,000, we have a settlement risk of USD 1,000,000 and a pre-settlement risk of USD 70,000.

CROSS-BORDER RISK

Interference with flow of funds

For those transactions that involve the flow of funds between countries, there is the risk that the government of a country may interfere with the repayment of a debt. We can have the situation of a company with a very good credit rating located in a country with a high **cross-border risk**. The company has enough local currency to meet its obligation but is prevented by government regulations from converting it into the necessary foreign currency.

Credit limits

A bank extending credit in foreign countries must develop a system to measure the total amount of funds, including money market and exchange transactions, exposed to cross-border risk for each country. When the total amount approaches the credit limit set for that country, dealers must obtain approval for additional transactions to be sure that the credit line is not exceeded.



9-10 RISKS AND CONTROLS

SUMMARY

The Treasury is directly responsible for identifying and managing liquidity and price risk. The Treasury must stay within approved credit limits for every counterparty, but the responsibility for counterparty risk belongs to the appropriate risk manager.

Liquidity risk is the risk that cash will not be available when obligations are due. In the money market, liquidity risk occurs when we have negative-gap positions. In the foreign exchange market, liquidity risk arises from an inability to obtain funds in a particular currency.

Liquidity risk and rate risk resulting from negative cash flows are controlled through maximum cumulative outflow (MCO) limits and monitored with MCO reports.

In foreign exchange transactions, rate risk arises from net exchange positions and FX swaps. Management sets overnight and daylight net position limits for each currency to control the rate risk.

Counterparty risk in money market transactions is controlled by lending within the preapproved limits. In foreign exchange transactions, counterparty risk is the chance that one party will not fulfill the agreed-upon obligation to exchange currencies. Settlement risk occurs on settlement date and is a 100% risk that we will pay, but the counterparty will not pay. Presettlement risk occurs before settlement date; it is the risk that the counterparty will not honor the deal and we will have to replace the transaction at a rate that is less favorable than the contract rate.

Credit limits for transactions that involve the flow of funds between countries take into account the exposure to crossborder risk.



You have just completed the final lesson in UNIT 1: *Risks and Controls*. Please complete the following Progress Check before continuing to UNIT 2: *Introduction to the Markets*. If you answer any of the questions incorrectly, you should return to the text and read that section again.

UNITS 2, 3, and 4 are on diskettes. You will find information on how to proceed in Appendix A.



9-12 RISKS AND CONTROLS

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PROGRESS CHECK 9

Directions: Select the one **best** answer for each question below. Compare your answers with the Answer Key on the following page.

Question 1	Liquidity risk is the most important concern for the Treasury. It is the risk that:
	 a) the bank will not find customers who want to borrow funds. b) deals will not yield profits. c) the bank will not be able to fund its obligations. d) interest rates will fluctuate.
Question 2	2: In the money market, liquidity risk occurs as the result of lending funds for longer than we borrow funds. This is a:
	a) positive gap.
	b) square position.
	c) cash flow position.
	d) negative gap.
Question 3	3: In a cumulative cash flow report, the cumulative data is used to:
	a) monitor limits on negative cash flows.
	b) determine eligible cash flow tenors.
	c) monitor exchange positions.
	d) chart exchange transactions.

-14 RISKS AND CONTROLS

ANSWER KEY

- **Question 1:** Liquidity risk is the most important concern for the Treasury. It is the risk that:
 - c) the bank will not be able to fund its obligations.
- **Question 2:** In the money market, liquidity risk occurs as the result of lending funds for longer than we borrow funds. This is a:
 - d) negative gap.
- **Question 3:** In a cumulative cash flow report, the cumulative data is used to:
 - a) monitor limits on negative cash flows.



PROGRESS CHECK 9

(Continued)

Question 4:	The maximum cumulative outflow (MCO) limit:
	a) tells the Treasury how much money to lend.
	b) controls liquidity risk exposure.
	c) is a valid operating tool.
	d) is not required by the Head Office.
Question 5:	When we lend funds for one year and borrow them for only six months, we make a profit if:
	•
	a) interest rates fall.
	b) we get funds for the second six-month period.
	c) interest rates rise.
	d) we match the cash flows.
Question 6:	We control the rate risk associated with holding a net exchange position by:
	a) establishing a position limit for each individual currency.
	b) squaring our net exchange position each day.
	c) setting the same position limit for overbought and oversold positions.
	d) hedging with FX swaps.



ANSWER KEY

- **Question 4:** The maximum cumulative outflow (MCO) limit:
 - b) controls liquidity risk exposure.
- **Question 5:** When we lend funds for one year and borrow them for only six months, we make a profit if:
 - a) interest rates fall.
- **Question 6:** We control the rate risk associated with holding a net exchange position by:
 - a) establishing a position limit for each individual currency.



PROGRESS CHECK 9

(Continued)

Question 7	A trader cannot react to interest rate changes that occur beyond the business hours. To protect against these changes, banks set:			
	a) daylight limits.			
	b) rate risk limits.			
	c) twilight limits.			
	d) overnight limits.			
Question 8	3: Even though FX swap positions are created through foreign exchange transactions, they are more a money market risk than a foreign exchange risk because FX swap positions are:			
	a) a combination of offsetting long and short positions.			
	b) overnight positions.			
	c) limited by money market rates.			
	d) like net exchange positions.			
Question (The final responsibility for counterparty risk lies with:			
	a) the bank's administration.			
	b) each department that deals with customers.			
	c) the risk manager.			
	d) the Treasury.			



9-18 RISKS AND CONTROLS

ANSWER KEY

- **Question 7:** A trader cannot react to interest rate changes that occur beyond the business hours. To protect against these changes, banks set:
 - d) overnight limits.
- **Question 8:** Even though FX swap positions are created through foreign exchange transactions, they are more a money market risk than a foreign exchange risk because FX swap positions are:
 - a) a combination of offsetting long and short positions.
- **Question 9:** The final responsibility for counterparty risk lies with:
 - c) the risk manager.



RISKS AND CONTROLS 9-19

PROGRESS CHECK 9

(Continued)

Questio	on 10:	What is settlement risk?
		a) In a money market deal, we run a 100% risk that our counterparty will not repay a loan at maturity.
		b) In a foreign exchange deal, we run a 100% risk that our counterparty will default on settlement date.
		c) In a six-month money market deal, we run a 100% risk that our counterparty will default before maturity date.
		d) In a forward exchange deal, we run a 100% risk that our counterparty will declare bankruptcy before settlement date.
Questio	on 11:	What is the credit risk factor assigned to each transaction?
		a) 100% settlement risk
		b) 100% pre-settlement risk
		c) 7% pre-settlement risk
		d) An established percentage for pre-settlement risk
Questio	on 12:	Mega Company in Country A owes a dollar debt to Citibank in the United States. The company has an excellent credit rating and sufficient local currency to repay the debt. However, the local government will not allow the company to convert local currency into dollars. This is an example of:
		a) cross-border risk.
		b) currency risk.
		c) counterparty risk.
		d) country risk.



RISKS AND CONTROLS

ANSWER KEY

- **Question 10:** What is settlement risk?
 - b) In a foreign exchange deal, we run a 100% risk that our counterparty will default on settlement date.
- **Question 11:** What is the credit risk factor assigned to each transaction?
 - d) An established percentage for pre-settlement risk
- Question 12: Mega Company in Country A owes a dollar debt to Citibank in the United States. The company has an excellent credit rating and sufficient local currency to repay the debt. However, the local government will not allow the company to convert local currency into dollars. This is an example of:
 - a) cross-border risk.

Congratulations! You have finished the nine lessons in Unit 1: <u>Treasury Overview</u>. The information in Appendix A will help you access Units 2, 3, and 4 on diskettes. Please continue.



You will find Units 2, 3, and 4 on diskette. **See Appendix A for instructions** Unit 2

ШШЦ	Appendices

APPENDIX A

Sonfiguration Requirements

- IBM PC 386, 486 or Pentium
- DOS, Windows 3.1, Windows 95/98, or Windows NT
- Must have at least 3MB free on hard drive
- One 3.5" 1.44MB floppy drive

Keyboard

You will use the following keys to move back and forth through the course:

¿...... Forward B..... Back M..... Main Menu E..... Exit

They will appear on each screen to remind you.

Installation Procedures

For DOS and Windows 3.1 Systems:

- 1. At the DOS C:>, place the diskette in drive A or B
- 2. Type a:\or b:\then press Enter
- 3. Type *load*
- 4. Press Enter

After the computer finishes loading the contents of the disk onto the hard disk subdirectory called *Training*, it will display the following messages:

Installation Complete!!!
 Type treas go at the C: prompt and press
Enter

When C:\ prompt reappears, remove the disk

For Windows 95/98 or NT Systems:

- 1. From Start select Run and type a: Voad or b: Voad
- 2. Press Enter

To Run Program

For DOS and Windows 3.1 Systems:

- 1. From DOS C:\ prompt, type *treas go*
- 2. Press Enter

For Windows 95/98 and NT Systems:

- 1. From Start, select Run and type c:\training\treas go
- 2. Press Enter

APPENDIX B

GLOSSARY — Contains Words from the Workbook (Unit 1) plus the Computer-Based Units (Units 2 through 4)

Assets Anything owned that has value

Balloon Payment of the total principal, or a substantial part thereof,

Payment made at the end of a loan or lease

Bid Rate The rate at which quoting bank buys currency being priced

Borrowing Agreement to pay interest to a second party for the use of funds

over a specified period of time

Breakeven Exchange Rate Exchange rate that will not give either party an advantage from

interest rate differentials

Broker Person who acts as an intermediary between a buyer and seller,

usually charging a commission

Capital Hedge An asset with a value that equals or is greater than the amount of

a company's capital

Carrying Cost Difference between income earned on an investment and

income that would be earned if funds were invested in the most

profitable investment available

Central Bank

Swap

An operation in which the Central Bank of a country swaps local

currency liquidity for foreign currency liquidity with

commercial banks

Clean Risk One hundred percent risk that one party has honored its part of

the deal and cannot withdraw payment before the counterparty

goes bankrupt and defaults



B-2 GLOSSARY

Commodity Currency

See: Priced Currency

Compound Interest

Interest computed on the sum of an original principal and

accrued interest

Counterparty Risk Chance that a borrower will be unable to repay the principal

or pay the interest

Country Risk See: Sovereign Risk

Covered Interest Arbitrage

The exercising of an opportunity for profit which arises when the swap rates for a particular pair of currencies are out of line with the interest differentials; buying a country's currency spot, investing for a period, and selling the proceeds forward in order to make a net profit due to the interest rate in that country

Credit Risk Factor (CRF)

A factor representing the possible loss on a transaction due to pre-settlement risk, expressed as a percentage of the notional

value

Creditworthiness Financial stability that justifies the extension of credit

Cross Rate An exchange rate calculated from two different currencies

compared to the same third currency

Cross-border Risk

Risk that a company cannot meet its obligation in a foreign currency due to government regulations that prevent converting

local currency into the necessary foreign currency

Cross-currency Funding

Funding through other currencies using forward exchange as

a hedge

Cumulative Cash Flow Report

See: Maximum Cumulative Outflow Report



Currency Option

The right to buy / sell a specified amount of currency at a specified strike price in exchange for the up-front payment of a

premium

Currency Swap Transaction that combines a spot purchase and simultaneous

forward sale, or a spot sale and simultaneous forward purchase,

of the same currency

Daylight Limits Maximum net position allowed during trading hours

Derivative A financial product where the cash flows involved in the

transaction, and the value of the product, are derived from

Quotation of a currency in terms of the dealer's domestic

another market

Devaluation Decrease in the value of a country's currency in terms of other

currencies

Devalues See Devaluation

Quotation currency

Discount The amount by which the forward rate is less than the spot rate

Discount Rate Interest rate that a Central Bank charges on loans to comercial

banks

Discounted
Basis Interest
Payment

Direct

Interest payment at the beginning of the transaction

Domestic Money Market A market in which local currencies are borrowed and lent in exchange for negotiable financial paper that represents a sum one person or institution owes another. Domestic money markets are subject to regulations governing those domestic

markets.

Effective Interest Rate The rate or earning on a bond investment based on the actual price paid for the bond, the coupon rate, the maturity date, and

the length of time between interest dates



B-4 GLOSSARY

Eligible Value

Date

Date that is a business day in the countries of both currencies

being traded

Engineered Swap Swap in which the two parts of a swap (the spot transaction and the forward transaction) take place between two different counterparties — the swap is therefore "pieced" together or

engineered

Euro Short for European; when prefixed to a currency name, means

that the currency is traded outside the rules governing monetary

policy for that currency

Exchange Rate

Price at which one country's currency can be converted into

another's

Exchange Rate Differential

Difference between spot and forward rates for the same

currency; same as swap rate

External Dollars

US funds traded among foreign banks

Flat Interest Rate

An interest rate that disregards the time element

Foreign Exchange Market Market where currencies of different countries are traded

Foreign Money Market

A market in which a currency is borrowed or loaned outside the country of that currency. Foreign money markets allow funds in any currency to be traded outside the regulations governing

domestic markets of that currency.

Forward Exchange Agreement (FXA) Agreement to net the spot market value of a contract amount of one currency against a pre-specified contract amount of another

currency



Forward Foreign Exchange (FX) Contract Agreement to purchase an amount of one currency in exchange for another currency at a pre-determined rate on a specified

future date

Forward Market

A market in which foreign currency and some money market

instruments are traded for future delivery

Forward Rate Agreement (FRA) Agreement to net the market-defined amount of interest on a given principal amount against a pre-specified contract amount

of interest

Futures Contract

Standardized forward contract which requires nearly continuous settlement of losses and gains and collateralization against

potential payments

Gap Mismatch between the maturities of a bank's assets and

liabilities

Gapping Deliberate mismatching of the maturities of a bank's assets

and liabilities

Gapping Position

Bank's position when there is a mismatch between the maturities

of assets and liabilities

Hedge Elimination of exposure to risk by acquiring an offsetting

position

Indirect Quotation Quotation of a currency in terms other than the dealer's

domestic currency

Interest Cost of using money, expressed as a rate per period of time

Interest Rate Cap

Option on an FRA or swap that allows a borrower to receive the FRA or swap payment without the risk of making the FRA

payment or swap payments if market rates are below the

contract rate on the rate-setting date

Interest Rate Differential

Difference between the interest rates of two currencies

involved in a transaction



B-6 GLOSSARY

Interest Rate Floor

Option on an FRA or IRS that allows an investor to receive the FRA or swap payment without the risk of making the payment if market rates are above the contract rate on the rate-setting date

Interest Rate Swap (IRS)

Multiple period forward contract that lists the notional principal amount, the settlement dates, and the pre-specified interest rate to be settled against the market interest rate

Investors

Companies, institutions, and individuals who buy assets from issuers

International Standards Organization (ISO) Codes Internationally recognized messaging codes for use in funds

transfers via SWIFT

Issuers Companies and other entities that sell assets, such as stocks,

bonds, and even parts of the company itself

Legal Reserve Requirement

Cash and other liquid assets that Central Banks require banks

to keep

Lending Agreement to receive interest from a second party for the use

of funds over a specified period of time

Liabilities Anything that is owed

Liquidity Ability to convert assets into cash or equivalent, without

significant loss, to meet the financial obligations of the bank

Liquidity Report Report that contains information to help set and enforce limits

on negative cash positions

Liquidity Risk Chance that the bank will be unable to liquidate enough assets to

meet financial obligation on time

Maximum
Cumulative
Outflow Report

Report that measures liquidity risk by classifying all the assets,

liabilities, and capital account balances by maturity date



MCO Limit Limit on negative cash flows

MCO Report See: Maximum Cumulative Outflow Report

Micro- Economics from the viewpoint of an individual industry or company

Money Market Where currency is borrowed and deposited by financial

institutions and other major corporations

Negative Gap Gap that results when an asset is financed by a shorter liability

Negotiable Instrument that can be transferred from one person to another **Instrument**

Net Cash Flow Difference between all cash inflows and outflows in an

institution's balances in a particular currency on a given value

date

Net Exchange
Position

Difference between the present value of all cash inflows and outflows in a currency aggregated for all the value dates of

interest

Net Net exchange position in which the assets in a currency exceed the liabilities in that same currency

Net Oversold Net exchange position in which the liabilities in a currency exceed the assets in that same currency

Nominal Interest rate shown on the face of an interest-bearing instrument Interest Rate

Offer Rate The rate at which the quoting bank sells the currency being

priced

Operational Cash and other liquid assets kept by the bank to cover possible liquidity needs

Opportunity
Cost

Difference between income earned on an investment and income that could be earned on the best investment alternative

available



Position

B-8 GLOSSARY

Overbought (Long) Position

Position that results from having more assets than liabilities in a

currency

Overnight Limits

Limits that cannot be exceeded at the end of the trading day

Oversold (Short)
Position

Position that results from having more assets than liabilities in a

currency

Pool Rate Rate used to charge/credit the users/suppliers of the transfer

pool

Position A bank's net balance of purchases and sales in a foreign currency

at the end of a business day

Positive Gap Gap that results when an asset is financed by a longer liability

Premium The amount by which the forward rate is greater than the spot

rate

Pre-settlement

Risk

Risk that the counterparty will default on a deal before the

settlement date

Priced Currency

One unit of a currency that is priced in terms of another currency (US1 = FF4; the priced currency, US5, is priced in

terms of the French franc)

Principal The face amount or par value of a debt security

Promissory

Note

Written promise to pay a specific sum of money on demand or

at a specific date

Pure Swap A swap transaction in which the spot transaction and the forward

transaction involve the same parties

Rate Risk The risk that profits may decline or losses occur because a rise

in interest rates forces up the cost of funding fixed-rate loans or

other fixed-rate assets



Reciprocal

Rate

Price of one currency in terms of a second currency when the price of the second currency is given in terms of the first

Reserve Amount of cash or other liquid assets – normally expressed as a

percentage of demand and time deposits – that commercial banks maintain in their vaults or with the Central Bank; this amount is the larger of the technical reserve which the bank deems necessary to maintain liquidity and the legal reserve

requirement imposed by the Central Bank

Revaluation Increase in the value of a country's currency in terms of other

currencies

Revalues See: Revaluation

Settlement Risk Risk that the counterparty will default on the settlement date

Sovereign

Risk

Risk that a government will default on its commitment, or force

the country's citizens to default

Spot Transactions for payment or settlement normally in two

business days after the trading date

Spot Market Market for immediate as opposed to future delivery; in the spot

market for foreign exchange, settlement is usually two business

days after the trading date

Spot Rate Currency exchange rate applicable to transactions for payment

or settlement on the spot date

Square

Position

See: Squaring a Position

Squaring a

Position

Making the inflows of a given currency equal to the outflows of that currency for all maturity dates, producing a square exchange

position in that currency

B-10 GLOSSARY

Swap Points Swap rate expressed as basis points; for instance, a swap rate of

0.90 is equal to 90 swap points

Swap Rate See: Exchange Rate Differential

Tenor Period between the date an obligation is assumed and the date it

becomes due

Term Currency Currency used to price the priced currency (US\$ 1 = FF4; the priced currency is US\$ and the term currency is the French

franc)

Trading Purchasing and selling securities or commodities with the

expectation of making a short-term profit

Transfer Pool Hypothetical pool to which the business segments contribute

funds or from which they draw funds

Transfer Pool

Rate

Rate that the Treasury pays for the use of funds or charges to the lender of funds within the bank; measures the profitability of

each profit center as net users or suppliers of funds

Treasury Department

Department in charge of managing funds

Two-way Market

Market that quotes both bid and offer rates

Two-way Quote Quote that includes both bid and offer rates

Value Date Payment or settlement date of a foreign exchange transaction

Yield See: Effective Interest Rate

Yield Curve Curve that represents interest rates for each different tenor of

one financial instrument



APPENDIX C

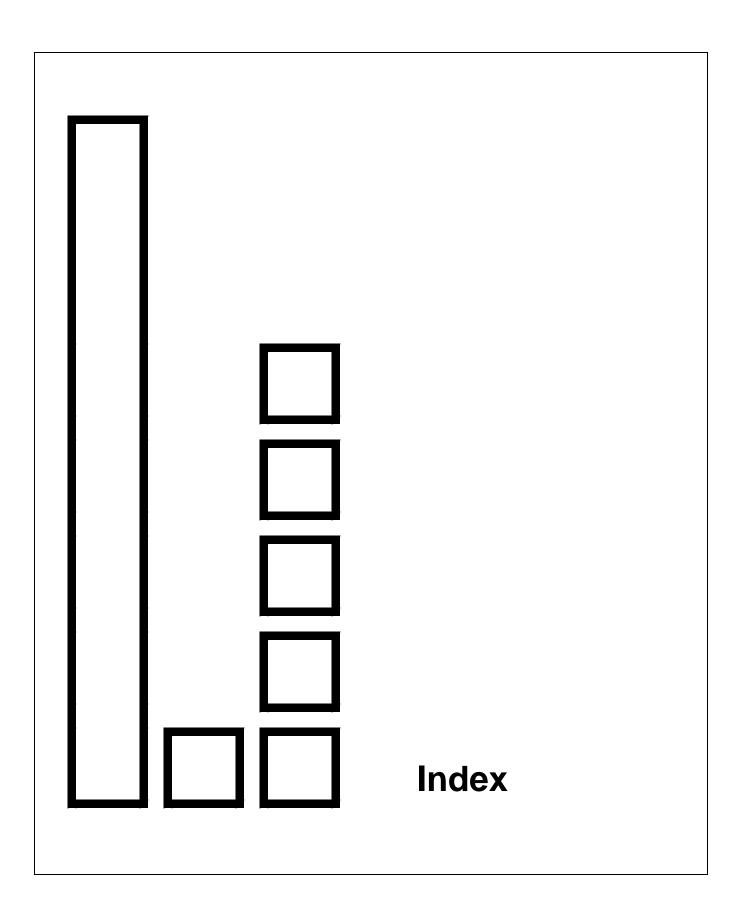
ISO CODES

Code	Currency	Code	Currency
ARS	Argentine Peso	JOD	Jordanian Dinar
AUD	Australian Dollar	KES	Kenyan Schilling
ATS	Austrian Schilling	KWD	Kuwaiti Dinar
BSD	Bahamian Dollar	MGF	Malagasy Franc
BHD	Bahraini Dinar	MWK	Malawi Kwachi
BDT	Bngladesh Taka	MYR	Malaysian Ringgit
BBD	Barbados Dollar	MTL	Maltese Lira
BEF	Belgian Franc	MUR	Mauritian Rupee
BZD	Belize Dollar	MXN	Mexican Nuevo Peso
BMD	Bermudian Dollar	MAD	Moroccan Dirham
BOB	Bolivian Boliviano	NPR	Nepalese Rupee
BWP	Botswana Pula	ANG	Netherlands Antilles Guilder
BND	Brunei Dollar	NLG	Netherlands Guilder
CAD	Canadian Dollar	NZD	New Zealand Dollar
CLP	Chilean Peso	NGN	Nigerian Naira
COP	Colombian Peso	NOK	Norwegian Krone
CYP	Cypriot Pound	OMR	Omani Riyal
CZK	Czech Koruna	PGK	Papua New Guinea Kina
DKK	Danish Krone	PEN	Peruvian Nuevo Sol
DEM	Deutsche Mark	PLN	Polish Zloty
DJF	Djibouti Franc	PTE	Portuguese Escudo
DOP	Dominican Peso	QAR	Qatar Riyal
XCD	East Caribbean Dollar	SAR	Saudi Riyal
ECS	Ecuadorean Sucre	SCR	Seychelles Rupee
EGP	Egyptian Pound	SLL	Sierra Leone
EUR	European currency	SGD	Singapore Dollar
SVC	El Salvador Colon	ZAR	South African Rand
ETB	Ethiopian Birr	ESP	Spanish Peseta
XEU	European Currency Unit	LKR	Sri Lankan Rupee
FJD	Fiji Dollar	SRG	Surinam Guilder
FIM	Finnish Markka	SEK	Swedish Krona
FRF	French Franc	CHF	Swiss Franc
GMD	Gambian Dalasi	TZS	Tanzanian Shilling Thai Baht
GRD	Greek Drachma	THB	
HTG	Haitian Gourde	TOP TTD	Tonga Pa'anga
HNL	Honduran Lempira		Trinidad & Tobago Dollar
HKD	Hong Kong Dollar	TND TRL	Tunisian Dinar Turkish Lira
HUF	Hungarian Forint	UGS	Ugandan Schilling
ISK	Icelandic Krona		
INR	Indian Rupee	AED GBP	United Arab Emirates Dirham UK Pound Sterling
IDR	Indonesian Rupiah	USD	US Dollar
IEP	Irish Pound		Venezuelan Bolivar
ILS	Israel Shekel	VEB ZMK	Zambian Kwacha
ITL	Italian Lira	ZWD	Zimbabwe Dollar
JMD	Jamaican Dollar	ZWD	Zimoaowe Donai
JPY	Japanese Yen		



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This Index applies to the Basic Treasury Workbook (Unit 1) only

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